NORTH COAST RESOURCE PARTNERSHIP

A. General Project Information

1. **Organization / Project Sponsor Name:**

   Scott River Watershed Council

2. **Project Name:**

   East Fork Scott River Green Infrastructure Mountain Meadows Project

3. **Has the organization implemented similar projects in the past?** ☒ yes ☐ no

4. **If the project sponsor has worked with NCRP in the past, describe the project and outcome.**

The Scott River Watershed Council has completed a project, Siskiyou County Fuel Reduction, Greenhouse Gas Reduction and Soil Health Amendment Demonstration Project, with NCRP and completed all deliverables on time. The project demonstrated biochar production and has resulted in an additional project to demonstrate the value of biochar in agricultural production. SRWC is in progress with a second NCRP funded project, Scott River Headwaters Forest Health, Fire Safety, and Water Quality Improvement Project. The project is in progress and ahead of schedule. The project consists of forest treatments and road improvements.

5. **Please describe the qualifications, experience, and capacity of the project team that will be overseeing project implementation.**

SRWC is the Project manager and will provide overall management and oversight and is responsible for all contractual obligations and deliverables. SRWC has implemented many similar projects over the past 15 years and has skills in both technical and scientific restoration issues and general project management. SRWC is known for its collaborative relationships and ability to work with a broad range of stakeholders.

Klamath National Forest (KNF) is committed to the Project and has personnel participating in the Project leadership team. The Project is part of the larger KNF Environmental Assessment

(EA) for the East Fork Scott River Restoration project, and, as such, has already had extensive environmental analysis with a completed NEPA.

US Forest Pacific Southwest Research Station (PSW) has committed Research Wildlife Biologist Karen Pope and associated staff to the Project. Dr. Pope is an acknowledged leading meadow restoration researcher and practitioner.

Stillwater Sciences (SWS) will provide geomorphic and engineering oversight.

BBW and Associates (BBWA) will provide oversight of forestry practices and support environmental compliance and permitting.

Quartz Valley Indian Reservation will provide traditional Ecological Knowledge (TEK) and ensure integration with traditional cultural values.

6. Is this project part of a larger project or program? If so, what effectiveness monitoring is being conducted and what are the results?

This Project is part of several larger programs that includes monitoring, as follows.

1) The SRWC East Fork Meadow Restoration Planning Project. The Project team is undertaking a catchment level assessment and planning project for the two streams identified for this project, Cabin Creek and Rock Fence Creek (Creeks). The larger planning project will utilize high tech, terrain level remote sensing tools, coupled with on the ground assessments, to undertake a holistic approach to identify, and plan to remediate, the significant source problems that have resulted in stream and meadow degradation. This (NCRP) Project will undertake a subset of pilot interventions identified in on-going planning to address in-stream degradation and meadow degradation. The early actions proposed in this project will provide a feedback loop that will inform and accelerate the larger planning process, as well as providing immediate hydrological and habitat benefits. A funding request for the larger planning project has been submitted to the Wildlife Conservation Board and has been invited to advance from a pre-proposal to a full proposal, indicating a high likelihood of funding.
2) The KNF East Fork Environmental Assessment. Our proposed project is a subset of the East Fork EA, which covers treatments over 31,540 acres and includes meadows, riparian areas, fuels reduction, mine reclamation, stand density reduction, and wildlife habitat improvements.
3) The project will contribute to the Klamath Meadows Partnership (KMP) goal of mapping meadows across the entire Klamath and Coastal Regions (aligning with the NCRP geographic boundary). Innovative remote sensing processes and methodologies developed at PSW will be refined and calibrated for the region during the Project and

subsequently used to accelerate the landscape scale evaluation of the entire region via the KMP.

Furthermore, SRWC received 2019 Proposition 1 IRWM (Round 1) funding for the "Scott River Headwaters Forest Health, Fire Safety, and Water Quality Improvement Project". This project is in progress and ahead of schedule. SRWC has gained experience in administering Prop 1 contracts including prevailing wage requirements. We have gained experience in managing forestry practice contracts and integrating with nearby fuel and fire prevention treatment. Due to close collaboration with project partners and other stakeholders with resulting Project cost efficiencies, SRWC has been able to treat more acres than originally anticipated.
In addition, SRWC has recently received a California Climate Investment award to remove forest fuels within 250 acres of the Wildland Urban Interface areas (WUI) in Scott Valley and will treat 5.25 miles of roadside to create and connect strategic fuel breaks to reduce the impacts of wildfire and decrease possible ember showers within areas of the community at very high risk of catastrophic wildfire. The combination of these ongoing SRWC efforts with the benefits of this Project will enhance wildfire reliance across the watershed.

7. Project Abstract [500 characters max.]

The Project will implement innovative mountain meadow restoration methodologies in order to improve groundwater water storage and habitat value in the biodiverse East Fork Scott River headwater systems. The Project will offer watershed protection, restoration, and management including reduction of wildfire risk, carbon storage and improved water supply reliability and water quality. The Project is integrated into larger efforts and will accelerate upper watershed restoration across the region.

8. Project Description [3,000 characters max.]

Purpose: Restore hydrologic and ecological function, water storage and summer streamflow in 65 acres of two high value meadow and stream systems in the East Fork Scott Watershed.
Problem: Climate change and drought have reduced precipitation and altered snow to rain, exacerbating legacy land use impacts in headwater stream systems to reduce habitat values for threatened species, groundwater storage and base flow.
Setting: East Fork Scott River drains 115 square miles. Elevations range from 3,200 ft. to 7,600 ft. The project lies in two headwater catchments (Cabin and Rock Fence Creeks) of the East Fork Scott River. The area has high biodiversity, climate resilience and connectivity values in the CDFW BIOS viewer and is home to threatened Cascades frog and California pitcher plants, rainbow trout, and many other species. The streams contribute cold water to the East fork Scott, which supports Coho, Steelhead and chinook salmon.
Components: We will restore ecological function by identifying and addressing source and transport problems and reconnecting natural hydrologic, geomorphic, and biological processes

by using process-based restoration (PBR) approaches to rebuild healthy and more resilient ecosystems. These nature based solutions are in alignment with Traditional Ecological Knowledge.

Implementation: The Project builds on the development of restoration actions by the KNF. We will combine catchment-level high resolution terrain analysis using existing LiDAR with field observations to identify current and historical flow paths to be reconnected to recover the system's hydrologic complexity within 11.05 miles of stream, followed by implementation of PBR, forest thinning and meadow conifer removal with placement of the woody material into the streams. Actions will commence upon receipt of this funding, while tasks requiring more extensive design will be addressed in the larger planning process. The actions in this project will inform the larger planning effort in a "Plan-Do-Study-Act" methodology adapted from industrial technology. In this era of climate change and severe droughts, restoration must move to methods that can be quickly deployed and adapted. We will show moving from planning to implementation over a period of 1-3 years, rather than the typical 5-10 years current practice requires.

Benefits: "Slowing, sinking and storing" water via floodplain connection and instream structure will improve water quantity in baseflow and water quality by hyporheic cooling of groundwater and deposition of sediment and manure on the floodplain. Climate Change resilience and ecosystem benefits for threatened and common species will be enhanced by improved streamflow, instream complexity and increasing wet meadow/fen habitat in an area identified as having high biodiversity. Jobs for the local DAC and Quartz Valley Indian Reservation members will be created during the project and from subsequent projects resulting from lessons learned in this project.

9. Specific Project Goals/Objectives

Goal 1: Enhance stream conditions, floodplain connectivity and groundwater recharge in two streams systems.

Goal 1 Objective 1: Deploy 450 Beaver Dam Analogues (BDAs) and/or woody debris structures for ecological services and to push water from incised channels onto the floodplain for recharge and groundwater storage.

Goal 1 Objective 2: Utilize high tech, innovative LiDAR tools to perform rapid and effective analysis to plan actions for Objective 1. Team will calibrate and refine new and existing tools for Klamath conditions.

Goal 2: Improve wet meadow health for multiple threatened species- Cascades frog, California pitcher plants and others.

Goal 2 Objective 1: Remove encroaching conifers in 65 wet and montane meadows and adjacent forest to release wetland vegetation and provide woody debris for restoration.

Goal 2 Objective 2: Remove invasive weed species with hand removal methods, either burning or composting on site or disposing off-site in the 65 acre project area.

Goal 2 Objective 3: Identify grazing management associated with healthy meadows, explore options to reduce impacts. KNF staff, allotment permittees and consultants will evaluate options with (2) informational meetings.
Goal 2 Objective 4: Increase flow path length by 50% and reverse stream incision at 10 high value locations with installation of 450 structures.

Goal 3: Improve water quality and carbon storage by deposition/storage of organic material on floodplain.
Goal 3 Objective 1: Explore innovative grazing management as in Goal 2 Objective 3 to plan to reduce grazing impacts post restoration.
Goal 3 Objective 2: Improve floodplain connectivity to allow manure/organic material to deposit rather than be carried downstream as documented by a 30% increase in summer wetted area post implementation.
Goal 3 Objective 3: Improve vigor of meadow vegetation to increase soil carbon storage by increasing wetted area during the dry season as determined by soil organic carbon calculations.

Goal 4: Ensure inclusion of TEK in the project and enhance regional meadow restoration collaboration.
Goal 4 Objective 1: Quartz Valley Indian Reservation (QVIR) will be a funded partner providing TEK leadership and a written report on TEK inclusion.
Goal 4 Objective 2: Project team will have 5 partners and report to local and regional stakeholders at 2 meetings such as KBMP, NCRP, and Klamath Meadows Partnership.

Goal 5: Improve forest health adjacent to restored meadows.
Goal 5 Objective 1: Decrease conifer stand density per KNF EA prescription adjacent to restored meadows.
Goal 5 Objective 2: Utilize conifer thinning "slash" material for instream structure or pile burn. EA allows the slow spread of fire between piles to start introducing a more natural fire regime.

Goal 6: Develop and disseminate rapid catchment level meadow assessment tools.
Goal 6 Objective 1: Use Project to refine and calibrate LiDAR assessment tools developed for other regions.
Goal 6 Objective 2: Disseminate results widely by presenting Project tools and methods at minimum 2 professional events.

10. Describe how the project addresses the NCRP Goals and Objectives selected. [1,000 characters max.]

GOAL 1: Ob. 3 - TEK is a core value and a written report on its inclusion will assist in incorporating it into North Coast Projects.
GOAL 2: Ob. 4 - DACs of Scott Valley and QVIR will be supported with integration of tribal cultural values and improving upper watershed natural infrastructure.

GOAL 3: Ob. 6 - Restoration of project watersheds and aquatic ecosystems will enhance biological diversity. Ob 7 - By increasing cold water base flow, salmonid populations will be enhanced.
GOAL 5: Ob. 11 - Increased water storage will address drought, attenuating peak flows will reduce flood risk, and increased wetted area that will act as fire refugia and control points.
GOAL 5: Ob. 12 - Carbon storage in wetlands and increased carbon sequestration with vigorous plant growth will decrease GHG production. Low tech, human powered forest management and restoration will create jobs.
GOAL 6: Ob. 13 - see Goal 5

11. Describe the physical, biological and/or community need for the project. [1,000 characters max.]

Wetlands are one of the rarest and most biodiverse habitat types. Anthropogenic activities have reduced them by 90% (State Water Board) in California. The Project area has extensive wetlands and potential to restore 200+ acres more per preliminary analysis. It is recognized by CDFW as an area of high biodiversity, has very rare fen habitat and is home to several threatened species, including Cascade Frog, Pickering's ivesia and California Pitcher plant. Stream incision, climate driven drought, grazing and the conversion of precipitation from snow to rain continue to degrade the Project meadows. Implementing PBR restoration will reverse this trend, store more water for late season release and increase the unique habitat. Located in the upper watershed, the enhancement of the habitat will offer altitudinal climate change refugia for many species. Mountain meadows have many plant species of cultural value to local indigenous people and restoring the habitat will enhance the opportunity to access them.

12. Describe the financial need for the project. [1,000 characters max.]

The Project is located on the KNF and is recognized as being of high value in the East Fork EA, however KNF has limited-to-no funds or staff to take the EA actions from conceptual to actionable and then implement them. If external funding is not available, the Project will languish, allowing degradation to continue. Many entities are contributing cost-share, but it is insufficient to achieve the needed scale of restoration. Some funds have been received by KNF and SRWC for limited restoration actions, but additional funding is required to continue the progress. Return on investment will accrue not only from the physical Project benefits, but from the streamlining of restoration planning being undertaken within the larger planning project which this Project will inform. Lack of funding for this Project will delay the development of these planning tools and slow the pace and scale of meadow restoration in the region.

13. Describe potential adverse impacts from project implementation and how they will be mitigated.

Potential adverse impacts from the Project are very limited due to the use of PBR techniques. We will not use heavy equipment in the wet areas of this Project, thereby avoiding significant soil disturbance and the importation of invasive species. Additionally, the site stewardship approach of the Project, where "light touch" restoration actions are implemented, coupled with monitoring, further reduces the possibility of serious adverse impacts because any that may occur will be identified early on and remediated. Potential adverse impacts include rerouting of water to areas not desired and potential return flow issues when water returns to the stream channel. These issues are easily remediated by removing or redesigning the low-tech instream structures and/or placing additional structures as needed. An additional potential negative impact is reducing flow to current important habitat for Cascade Frog, which will be prevented by pre-implementation surveys to identify these areas, effective planning tools and post-implementation monitoring.

14. **Will this project mitigate an existing or potential Cease and Desist Order or other regulatory compliance enforcement action?** ☐ yes ☒ no
    If yes, please describe. [500 characters max.]

15. **Does the project address a contaminant listed in AB 1249 (nitrate, arsenic, perchlorate, or hexavalent chromium)?**
    ☐ yes ☒ no
    If yes, provide a description of how the project helps address the contamination. [500 characters max.]

16. **Describe how the project contributes to regional water self-reliance and addresses climate change.** [1,000 characters max.]

We will increase soil moisture retention, groundwater recharge, and delay the onset of base flow in the Project streams by reducing the rapid runoff of precipitation and increasing access to floodplains for recharge. Tree thinning will reduce tree mortality, evapotranspiration and wildfire risks. The beneficial impact of these actions will be scaled up across the region as the tools and methodologies are refined during the Project, contributing to regional water self-reliance. Section 108.5. (a) of the California Water Code declares that the established policy of the state is that source watersheds are recognized and defined as integral components of California's water infrastructure. Eligible maintenance and repair activities include: (1) Upland vegetation management to restore the watershed's productivity and resiliency, (2) Wet and dry meadow restoration, and (3) Stream channel restoration, all are activities of the Project.

17. **Does the project increase public safety with regards to flood protection, wildfire hazard risk reduction, increasing firefighting capacity, or in other ways contribute to regional emergency resiliency?**

☒ yes ☐ no
Please explain. [500 characters max.]

The Project has the potential to attenuate peak flows and decrease downstream flood risk. The Project contains a Potential Operational Delineation for fire control. Increasing the wetted area offers additional fire control opportunities, thereby decreasing wildfire risk. Thinning conifer density will reduce wildfire risk.

18. **Does the project employ new or innovative technologies or practices, including Decision Support Tools that support the integration of multiple jurisdictions, including, but not limited to, water supply, flood control, land use, and sanitation?** ☒ yes ☐ no

    If yes, please describe. [500 characters max.]

The Project will utilize innovative high resolution LiDAR mapping and assessment tools (see supplemental materials) to rapidly assess the watershed to identify locations where low tech interventions can easily route flow onto floodplains and historic channels. As the tools, developed for the Sierra Mountains, are calibrated for local conditions, they will be shared regionally via the Klamath Meadows Partnership in order to accelerate cost-effective landscape scale upper watershed management.

19. **Describe the population served by this project, including any economically disadvantaged communities or Tribes that will directly benefit.**

The Project is located in a severely disadvantaged community with a median household Income of $45,707. Residents from this community, as well as from the adjacent disadvantaged communities as delineated in the DAC mapper, will be employed in the Project thereby providing economic benefits. QVIR is a funded Project partner and, as such, will receive direct benefits. Additionally, QVIR will provide TEK oversight, ensuring that cultural resources will be preserved and enhanced. The Project will restore an area that allows public access and enhances public recreation. Water quality will be improved with lower stream temperatures (hyporheic cooling) and floodplain connection will capture sediment thereby addressing the Scott River's temperature and sediment TMDL impairments. Several endangered and threatened species will benefit from habitat enhancements, thereby assisting in addressing regulatory pressures. The Project is identified in the Groundwater Sustainability Plan (Siskiyou County Flood Control & Water Conservation District Scott Valley Groundwater Sustainability Plan Final Draft Report, December 2021 Chapter 4: Projects And Management Actions), so implementation will assist in addressing groundwater sustainability.

20. **Describe local and/or political support for this project.** [500 characters max.]

The Project has extensive regional political support. The Groundwater Sustainability Plan, developed with a local advisory committee and approved by the Board of Supervisors, identifies the Project as a near term management action. The North Coast Resource Partnership, a collaborative of local governments, Tribes and diverse stakeholders, has provided ongoing project development technical assistance through the Regional Forestry and Fire Capacity (RFFC) Planning program. It is identified as a high priority action in the Integrated Fisheries Restoration and Monitoring Plan.

21. List all collaborating partners and agencies and nature of collaboration. [750 characters max.]

- The Klamath National Forest- landowner and ultimate decision maker. KNF has committed staff and resources to the Project. Project activities builds on the KNF EA (Cost share)
- USFS Pacific Southwest Research Station- Provide scientific and technical guidance and planning (cost share)
- USFWS Region 5- Provide monitoring, planning and design support (cost share)
- QVIR- provide TEK guidance and ensure inclusion of tribal cultural priorities and values (funded)
- Stillwater Sciences- provide geological and engineering oversight (funded)
- BBW and Associates- provide forestry predictive oversight and environmental compliance assistance (funded)
- Regional Water Board- committed to be State Lead Agency
- Klamath Meadows Partnership- share and disseminate Project results

22. Is this project part or a phase of a larger project? ☒ yes ☐ no

Are there similar efforts being made by other groups? ☒ yes ☐ no

If yes to either, please describe. [500 characters max.]

The Project is part of a larger planning and design project in the Cabin Creek and Rock Fence Creek watersheds. This Project will inform the larger project, which encompasses 4,190 acres and 11 stream miles. The Meadows Project is embedded in the East Fork EA, which encompasses over 30,000 acres. The Project is closely aligned with the Klamath Meadows Partnership and the assessment, planning and implementation projects of its members.

B. Project Location

1. Describe the latitude and longitude of the project site.

Latitude: 41.36763 Longitude: -122.61865

2. **Site Address (if relevant):**

Cal watershed Units Ver 2.2: 1105.420101 Cabin Meadows Creek.; 1105.420102 Rail Creek

3. **Does the applicant have legal access rights, easements, or other access capabilities to the property to implement the project?**

☒ yes	If yes, please describe below
☐ no	If no, please provide a concise narrative below with a schedule, to obtain necessary access
☐ NA	If NA, please describe below why physical access to a property is not needed

Explanation. [500 characters max.]

We have a signed access agreement with Klamath National Forest. There is physical access to the Project site via Forest Service roads. Low tech approach and utilization of on-site materials allows implementation in the more remote areas of the Project site.

4. **Project Location Notes:**

Cabin Meadow Creek and Rock Fence Creek (Creeks) are representative of many stream systems in the Klamath Mountains that have been degraded by human activities over the past centuries; overgrazing has reduced the resistance of meadows to erosion and roads have constricted flow paths (Supplement Materials). Paired with other activities (e.g., mining, timber harvest, fire suppression, beaver depredation), the Creeks became simplified and incised, resulting in more rapid flow conveyance with less connection to floodplains and groundwater. Despite these negative hydrologic impacts, the Creeks still support remnant fen patches with California pitcher plant and other rare plants and animals, including Cascades frogs. The Creeks have been identified in the KNF East Fork Environmental Assessment (EA) as priority areas for restoration.

The Project area lies at a high elevation, on a north facing slope in an area of high biodiversity and connectivity values per the CDFW Bios tables, therefore increasing its ecological, drought, fire and climate change resilience offers immediate drought benefits to multiple species.

C. Benefits To Disadvantaged Communities and/or Tribes

1. **Does the project provide direct water-related benefits to a project area comprised of Disadvantaged Communities or Economically Distressed Communities?** If partially, please estimate percentage of project that benefits disadvantaged communities and list the communities.

☐ Entirely

☒ Partially; estimate the percentage of benefits provided directly to DAC:
☐ No

List the Disadvantaged Community(s)

1) GEO ID 20 060930008003, OBJECT ID 7812, COUNTY FP 20 093, TRACT CE20 000800, BLK GRP CE 20 3, Population 682, Household 306, Median Household Income 48,167
2) GEO ID 20 06093000600, OBJECT ID 7808, COUNTY FP 20 093, TRACT CE20 000600, BLK GRP CE20 2, Population 994, Household 474, Median Household Income 61,636

Approximately 80% of the benefits accrue to these areas.

2. **Does the project provide direct water-related benefits to a project area comprised of Severely Disadvantaged Communities (SDAC**)? If partially, please estimate percentage of project that benefits disadvantaged communities and list the SDACs.
   ☐ Entirely
   ☒ Partially; estimate percentage of benefits provided directly to SDAC:
   ☐ No
   List the Severely Disadvantaged Community(s)

   GEO ID20 060930008002, OBJECT ID 17711, COUNTY FP20 093, TRACT CE20 000800, BLK GRP 20 2, Population 702, Household 327, Median Household Income 45,707

   Approximately 10% of the benefits accrue to the severely disadvantaged community.

3. **Does the project provide direct water-related benefits to a Tribe or Tribes**? If partially, please estimate percentage of project that benefits Tribe(s) and list the Tribes.
   ☐ Entirely
   ☒ Partially; estimate percentage of benefits provided directly to Tribe(s):
   ☐ No
   List the Tribal Community(s)

   Quartz Valley Indian Reservation
   Approximately 10% of the benefits

4. **If the project provides benefits to a DAC, EDA or Tribe, explain the water-related need of the DAC, EDA or Tribe and how the project will address the described need.** [750 characters max.]

The Project will increase groundwater storage and will support downstream instream flow, thus supporting indigenous cultural values related to fisheries and groundwater dependent ecosystems. The Project is identified in the Scott River Groundwater Sustainability Plan and will contribute to achieving its goals. It is a high priority in the Integrated Fisheries Restoration and

Monitoring Plan. The improved water quality from sequestration of manure and sediments and decreased temperatures contributes to addressing the Scott River sediment and temperature TMDL listings. The expansion of the meadow wetlands with associated groundwater dependent ecosystems will contribute to the watershed's climate resilience.

5. **Describe the kind of notification, outreach and collaboration that has been completed with the county(ies) and/or Tribes within the proposed project impact area, including the source and receiving watersheds, if applicable.** [500 characters max.]

Quartz Valley Indian Reservation is a funded collaborator and committed to the Project (see letter of support). North Coast Resource Partnership has provided ongoing technical assistance to support project development through the Regional Forestry and Fire Capacity (RFFC) Planning program. Siskiyou County as the Groundwater Sustainability Agency has selected the Project as part of the groundwater sustainability plan and has written a letter of support.

D. Project Benefits & Justification

1. **For each of the Potential Benefits that the project claims, complete the following table to describe an estimate of the benefits expected to result from the proposed project. Provide quantitative benefit amounts for at least the primary and secondary benefits. Provide a qualitative narrative description of expected benefits that cannot be quantified.** *See the NCRP Project Application Instructions for more information and a listing of potential benefits.*

PROJECT BENEFITS TABLE

Benefit Description	Units	Quantitative Amount	Qualitative Description
Water Supply			
Groundwater storage	Acre feet	TBD	Potential storage via this type of project is poorly qualified to date. Part of the companion planning project (funded elsewhere) will be a calculation of baseline conditions and estimate increase in storage after implementation based on wetted perimeter and depth to groundwater. Additional funding dependent.

Benefit Description	Units	Quantitative Amount	Qualitative Description
Prolongation of the recessional curve of the hydrograph to baseflow.	Rate of recessional curve	TBD	Effects of this type of project on the hydrograph are not well documented. Companion planning grant will develop an assessment based on measured streamflow- either before-after or intervention-control protocol. Additional funding dependent.
Honoring Tribal Cultural Values	Participation of QVIR		TEK will guide and direct the Project by QVIR participation in leadership and provision of TEK.
Water Quality			
Fecal Contamination	Units/ml	Reduction nutrients and bacteria from baseline	QVIR will perform water quality monitoring under companion grant to document Project benefits in regards to grazing impacts. Additional funding dependent.
Sediment	Tons	TBD	QVIR will perform suspense sediment monitoring and estimate reduction of downstream sediment transport. Additional funding dependent.
Water quality improvement	Activities performed	Two water quality activities performed	1) Improved floodplain access, 2) Decreased temperature at baseflow.
Climate Change			
Carbon sequestration	Metric Tons	4,754	Improved carbon sequestration from wet meadow restoration.
Other Ecosystem Service Benefits			
Special status species protected species	Number of Acres	Cascade Frog, Pitcher Plants	The Project will also estimate the increase in acres supporting Cascade Frog and Pitcher Plants. Anticipate a 10% increase over baseline (estimated 1 acre). As measured by wetted perimeter.
Fishery habitat	Stream miles	Number of stream miles enhanced- 2 miles	Miles of steelhead/trout habitat restored

Benefit Description	Units	Quantitative Amount	Qualitative Description
Forest Health	Acres	Acres of forest health treatments.	Number of acres with forest treatments with pre and post treatment stem counts.
Jobs Created or Maintained			
Jobs created or retained (FTE)	# FTE	6.25 FTE	5 person crew for 20 days year for instream work x 3 years= 1 FTE, Project Manager, Tech, monitoring supervisor combined = 2 FTE, forestry crew 3 people .25 FTE x 3 years= 2.25 FTE, QVIR and misc. other personnel = 1 FTE
Job/ workforce training	# Trainings	1	One training with a minimum of 15 participants in low tech process-based restoration.
Other Benefits			
Education & outreach	# of events	4	4 field tours and/or presentations at community or professional events.
Education & outreach	# of participants	50	At least a total of 50 participants at events.
Enhanced firefighting capabilities	Increased wetted area in	Increase by 10% of wetted area in late summer.	Increased area in moderate control location per NCRP map.
Decision Support Tools	# of events where tools are distributed	3	The companion planning project focuses on developing rapid assessment and planning tools in order to accelerate the scale and scope of holistic (roads, stream, meadow, forestry) upper watershed restoration and management. These tools will be refined and calibrated during the project. The on-the-ground activities requested to be funded in this project will inform tool development in an iterative adaptive management methodology. Results will be distributed via the Klamath Meadows Partnership, the Cal Process Based Restoration (CAL PBR) Network and other outlets.

Benefit Description	Units	Quantitative Amount	Qualitative Description
			Additional funding dependent.

2. **Does the proposed project provide physical benefits outside of the North Coast Region?**
   ☒ yes ☐ no
   If yes, describe the impacts to areas outside the North Coast Region. [500 characters max.]

The Project team is integrated into the Klamath Meadows Partnership and California Process Based Restoration Network (Cal-PBR). Innovative methodologies developed in the Project will be disseminated and result in accelerated project implementation and physical benefits across the region and State.

3. **List the impaired water bodies (303d listing) that the project benefits**:

Scott River - temperature and sediment TMDL listing.

4. **Describe how the project benefits salmonids, endangered/threatened species and sensitive habitats.**

Cabin and Rock Fence Creek are rainbow trout streams and improving instream habitat will benefit this species. Potential increases in downstream baseflow and water quality will benefit Coho and Chinook utilizing the East Fork Scott River. Cascade Frog are documented in the area and increases in ponded and wetland habitat will support this species. The Project area has rare peat bog habitat for California pitcher plant (*Darlingtonia californica*), and while this habitat type takes cemeteries to develop, reversing the degrading trend of the wetlands will prevent further losses and eventually increase this habitat type.

5. **Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project?**
   ☒ yes ☐ no
   Please explain. [500 characters max.]

The NEPA analysis prohibits the use of heavy equipment in wetted areas and restricts it for the forest thinning activity. The wetted areas are fragile and could not sustain the impact from machinery. In addition, much of the project is in remote areas inaccessible to heavy equipment. The BPR “light touch” approach offers the greatest benefit with least risk of negative consequences.

6. **Is the proposed project the lowest cost alternative to achieve the physical benefits?**
   ☒ yes ☐ no
   Please explain. [500 characters max.]

Mobilization and demob of heavy equipment (if allowed) in this remote area would be unduly expensive. Utilization of on-site materials from forestry activities for instream restoration is less costly than bringing purchased materials to the site. Laborer cost rate for the relevant job categories in this approach is considerably lower than for skilled heavy equipment operators, lowering labor costs.

7. **How will the project be monitored to determine whether it is producing the desired benefits?**

Included in this budget (cost share) is drone imagery to determine increases in wetted area and affected acreage and stream miles. Other committed deliverables are measured by calculations or by tracking activities and participation. Monumented photopoints will provide qualitative information. More complex monitoring tasks (flow, water quality) are additional funding dependent, but the team is committed to undertaking the larger planning and monitoring project and will pursue funds for it until they are achieved.

8. **Provide a narrative for project technical justification. Include any other information that supports the justification for this project, including how the project can achieve the claimed level of benefits listed below.** [3,000 characters max.]

We will use PBR and ecological restoration standards to scale-up stream restoration design and implementation to meet the problems in the watershed and across the region. We view forest meadow ecosystems as three-dimensional landforms that have developed over long time spans through interactions between physical and biological processes and assert that the main purpose of restoration is to reinvigorate these processes. Our underlying principles are: Use the intrinsic energy of a site (e.g., the potential energy of streams and the solar energy captured by plants) to do the work of restoration where possible; begin with minimally invasive procedures before attempting more heavily engineered and largely irreversible approaches; and address the root causes of degradation and remove or modify human infrastructure that constrains natural processes (Ciotti et al. 2021).

Within California's floodplain and meadow ecosystems, restoration usually involves techniques to raise streambed elevation and disperse streamflow (Hammersmark et al. 2009, Lindquist and Wilcox 2000, Pope et al. 2015). PBR accomplishes these goals by trapping sediment through direct reductions in stream power at key locations and restoring historical flow paths and/or removing human barriers to flow (e.g., road networks), encouraging multi-threaded channel formation, and creating conditions favoring the growth of emergent and riparian vegetation

(e.g., targeted livestock management) that can resist erosive flows (Wheaton et al. 2019). The technique distributes stream power through strategic placement of instream structures and BDAs using on site natural materials including wood, sod, rock, and soil. Locations of structures are determined by the existing arrangement of valley bottom landforms, as well as stream energy and sediment sources (Beechie et al. 2010, Pollock et al. 2014, Wheaton et al. 2019). BDAs, for example, have been shown to halt and reverse incision, raise groundwater tables, improve water quality, attenuate flood flows, and re-invigorate desiccated riparian and wetland areas (Pollock et al. 2014, Bouwes et al. 2016, Weber et al. 2017).

Although described as a "low-tech" restoration process (Wheaton et al. 2019), this approach has a broad scientific base (Poff and Ward 1989, Palmer et al. 2005, Beechie et al. 2010, Pollock et al. 2014, Ciotti et al. 2021) and makes use of high tech assessment tools. In addition to conventional pre-project site surveys, we intend to conduct detailed catchment-level analyses to locate flow path anomalies and restoration opportunities not easily observed onsite. We will develop high resolution terrain maps from LiDAR data to assess terrain and flow characteristics for the sites and surrounding catchments. We have developed an automated tool that creates detailed site cross-sections and maps flow paths to help pinpoint locations where installing wood structures would maximize their effect and habitat benefits.

9. **List and include any studies, plans, designs or engineering reports completed for the project as a "Technical & Reference Supporting Materials" into one document that includes a Table of Contents and is limited to** approximately **50 pages.** *Please see the instructions for more information about submitting these documents with the final application.*

See Supplemental Document.

10. **Project Justification & Technical Basis Notes: Please provide any additional information *not included above* that you think is important.**

Project start date is based on anticipated completion of contracting with NCRP. If contracting is completed sooner, we will commence work ASAP. Extensive pre-project analysis has already been completed (see supplemental materials). The team has been working together over the past 3 years to develop the project and a robust understanding of the site. Two field tours, the last as recently as 10/21/2022, have been performed with cost-share labor. Stillwater, PSW, BBWA, KNF and SRWC spent 10 hours at the site during each of the two tours. KNF has performed extensive analysis for NEPA. KNF has already undertaken meadow and forest treatments in a portion of the meadows and SRWC has received funds to remove/repair two failing culverts (work to be undertaken in 2023).

All team members are highly committed to the Project and are considerably enthused about the restoration potential of the Project area.

E. Project Tasks, Budget, And Schedule

1. **Projected Project Start Date:** 1/1/2024 (dependent upon completion of NCRP contracting)
   Anticipated Project End Date: 12/31/2027

2. **Describe the basis for the costs used to derive the project budget in each budget category.** [500 characters max.]

Wage rates are based on prevailing wage, though SRWC wages are higher because of significant labor shortages in the area, and seasonal nature of the work requires higher wages to attract and retain a workforce. Time allocations and materials for construction based on SRWC and BBWA experience with similar tasks. While manpower hours are higher than those associated with projects utilizing heavy equipment, the overall costs are less due to the avoidance of mob/demob and lower per unit cost. Costs for fuels treatments are high- ranging from $1700/acre- $2500/acre- due to the very remote area with limited access for vehicles.

3. **Provide a narrative on cost considerations including alternative project costs.** [500 characters max.]

The Project location and NEPA-determined Schedule of Proposed Activities greatly determined the restoration approach which then directs the cost considerations. However, even if other alternatives were possible, the human powered, light touch approach which utilizes onsite materials is the lowest cost (and best) alternative. Labor wages are based on prevailing wage and a desire to provide a living wage to residents of our economically disadvantaged region, as well as the remoteness of the Project site, which increases costs.

4. **List the sources of non-state matching funds, amounts and indicate their status**. Proposition 1 requires a minimum cost share of 50% of the total project costs, though a waiver may apply (see Question 6 below).

Total Cost Share ($142,351):

- SRWC Owned Equipment Use $14,600: SRWC post pounder 10 days use @$200/d, flow tracker 20 days use at $150/d, drone/w operator for acquisition of monitoring data 20 days @ $200/d, survey equipment 8 days at $350, misc. small equipment, chainsaws, shovels, equipment trailer, tractor etc. @ $2,800
- SRWC Personnel $39,511. See budget detail spreadsheet. Permit Development= $6,760, SRWC TEK= $5,087, Dissemination Project Results= $11,492, Collaboration= $11,492, Signage = $ 4,680

- Klamath National Forest $4,600: KNF Committed cost share for Maija Menkes time- 46 hrs @ $100
- PSW has committed $7,600 in cost share
- USDA Secure Rural Schools funds for culvert replacement $76,040

5. List the sources and amount of State matching funds.

SRWC is in the process of applying to the Wildlife Conservation Board for a companion planning and monitoring grant for the entire 4,190 acres and 19 stream km of Cabin and Rock Fence Creeks in the amount of approximately $900,000 (final budget yet to be determined). SRWC has been invited from pre-proposal to full proposal by WBC, indicating a strong possibility of receiving funding. If these funds are awarded, they can be utilized as a match for the NCRP application. If this is the case, the funds identified in the section above will be utilized as cost share for the WCB grant and unavailable for cost share for this Project.

6. Cost Share Waiver Requested (DAC or EDA)? ☒ yes ☐ no
Describe what percentage of the proposed project area encompasses a DAC/EDA, how the community meets the definition of a DAC/EDA, and the water-related need of the DAC/EDA that the project addresses. In order to receive a cost share waiver, the applicant must demonstrate that the project will ***directly*** provide benefits that address a water-related need of a DAC/EDA.

The physical footprint of the Project lies 100% in a severely disadvantaged community (tract 00800 block group 2) per the 2016-2020 census as indicated on the State of California DAC Map. https://gis.water.ca.gov/app/dacs/

All FTEs identified in the benefits table will be filled by residents in the above severely disadvantaged community or the nearby disadvantaged communities (tract 00800 block group 3, tract 00600 block group 2 per the 2016-2020 census as indicated on the State of California DAC Map. https://gis.water.ca.gov/app/dacs/) or Quartz Valley Indian Reservation employees (professional consultants from outside the community are not included in the FTEs).

The water related benefits are improvements in the following beneficial uses: Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Non-contact Water Recreation (REC-2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD) and Rare, Threatened, or Endangered Species (RARE). 100% of these benefits will accrue to the above identified disadvantaged and severely disadvantaged communities.

7. Is the project budget scalable? ☒ yes ☐ no

8. **Describe how a scaled budget would impact the overall project,** its expected benefits and state the minimum budget amount that would be viable (see Instructions E.7 for scaled budget examples). [500 characters max.]

The budget is scalable, at 25% reduction would reduce the number of instream structures from 450 to 300 and forestry acres from 65 to 49. Other associated management, monitoring and technical tasks would be scaled in a corresponding way.

9. **Major Tasks, Schedule and Budget for Project Solicitation**
   Please complete MS Excel table available at https://northcoastresourcepartnership.org/ncrp-proposition-1-irwm-round-2-solicitation/see instructions for the information to be included in this document and for how to submit the required excel document with the application materials.

10. Project Tasks, Budget and Schedule Notes:

Project costs for forestry practices are somewhat higher than typical due to remote location and limited vehicular access. The Project schedule is achievable due to extensive pre-funding planning and analysis. While we hope to receive companion funding from the Wildlife Conservation Board for planning additional recovery actions such as road remediation and more expansive forestry, meadow, and in-stream actions than those contained within this proposal, this Project has significant independent utility and benefit even if additional funding is not received in the near term.

The low-tech human-powered approach to restoration will provide significant employment for members of our disadvantaged community for three consecutive years.

11. **Project Information Notes.** Please provide any information that that has not been specifically requested that you feel is important for the NCRP to know about your project.

The Project is founded on the principle of local, regional, and statewide collaboration. The KMP will be an integral component of analyzing project results, sharing lessons learned and disseminating the results across the region to scale up the pace and scope of restoration in response to the climate crisis at hand. Similarly, the Project team's involvement in the Cal-PBR network will further disseminate the Project's effort across the State. Both groups will serve as informal technical advisory committees so that similar work elsewhere can be used to inform this Project, during a two-way flow of information. The Project is the first in the Scott to attempt to remediate climate change and streamflow impacts by working in the upper watershed. As such, particularly if the results are as robust as we hope, the project has the potential to reduce social strife around water use.

The Project will take rapid assessment LiDAR tools developed for the Sierra mountains and refine and calibrate them for North Coast mountains. When deemed reliable, these decision support tools can be applied across the region, reading the cost of restoration planning as well as the time required to perform it.

Major Tasks, Schedule and Budget for North Coast Resource Partnership IRWM Project Solicitation

Project Name: East Fork Scott River Green Infrastructure Mountain Meadows Project
Organization Name: Scott River Watershed Council

Task #	Major Tasks	Task Description	Major Deliverables	IRWM Task Budget	Non-State Match	Other Match	Total Task Budget	25% Scaled IRWM Budget	Current Stage of Completion (%)	Start Date	Completion Date
A	**Category (a): Direct Project Administration**										
1	Project Management	In cooperation with the County of Humboldt sign a sub-grantee agreement for work to be completed on this project. Develop invoices with support documentation. Provide audited financial statements and other deliverables as required	Invoices, audited financial statements and other deliverables as required	$29,472.00	$0.00	$0.00	$29,472.00	$22,104.00	0%	1/1/24	12/31/27
2	Reporting	Develop monthly reports describing work completed, challenges, and strategies for reaching remaining project objectives. Develop Final Report	Quarterly and Final Reports	$14,580.00	$0.00	$0.00	$14,580.00	$10,935.00	0%	1/1/24	12/31/27
B	**Category (b): Land Purchase/Easement**										
1				$0.00	$0.00	$0.00	$0.00	$0.00	0%		
C	**Category (c): Planning/Design/Engineering/Environmental Documentation**										
1	Final Design /Plans	Work with PSW Research and Stillwater Sciences to develop final designs and locations for instream structures sufficient for permitting. Dvelope fueld management specifications.	Final Designs at the implementable "typical' level	$17,394.00	$4,000.00	$0.00	$21,394.00	$13,045.50	25%	10/1/22	3/1/24
2	Project Performance Monitoring Plan	Develop Monitoring Plan to include goals and measurable objectives with assistance of USFS Region USFS PSW, KNF, Stillwater, BBWA, and USFS PSW	Final Monitoring Plan	$5,907.00	$3,600.00	$0.00	$9,507.00	$4,430.25	25%	1/1/24	3/2/24
3	Environmental Documentation: CEQA	Complete environmental review pursuant to CEQA. Prepare all necessary environmental documentation.	Environmental Information Form approved by DWR , likely using programmatic or categorical exemption pathway	$5,634.00	$0.00	$0.00	$5,634.00	$4,225.50	0%	1/1/24	8/1/24
4	Environmental Documentation: NEPA (if required)	Work with KNF to ensure all final plans conform to existing EA, obtain CE as required for uncovered activities.	All implementation activities funded under this solicitation will occur on areas with NEPA and described SOPA>	$2,180.00	$4,600.00	$0.00	$6,780.00	$1,635.00	0%	1/1/24	8/1/24
5	Permit Development	Complete all state and Federal Permitting including 401, 404, USFWS consultaions, CDFW (LSAA or equivelant)	Completed state and Federal permits for project activities, likely a small habitat 401 water quality certification with Habitat Restoration and Habitat Consistency Determination. 404 water quality certification is anticipated to be obtained via Nationwide 27.	$6,450.00	$6,760.00	$0.00	$13,210.00	$4,837.50	0%	1/1/24	8/1/24
D	**Category (d): Construction/Implementation**										
1	Contract Services	Complete all necessary bid documents, and subcontracts. Ensure adherence to prevailing wage requirements.	Bid Documents; Proof of Advertisement; Award of Contract; Notice to Proceed	$4,360.00	$0.00	$0.00	$4,360.00	$3,270.00	10%	1/1/24	6/1/24
2	Construction Administration	Supervise all construction activities to ensure compliance with laws and designs. SRWC will supervise in-stream structure construction,with Stillwater TA, BBWA will supervise forestry/meadow work.	Construction Management Logs; Completed construction administration tasks documented in monthly progress reports; DWR Certificate of Project Completion. Complete 450 in-stream structures and treat 65 meadow/forest acres.	$37,854.00	$0.00	$0.00	$37,854.00	$28,390.50	0%	8/15/24	9/1/27
3	Project Construction/Implementation: In-stream	Construct 450 BDAs, PALs and/or small check dam structures utilizing onsite materials such as logs, brush, rocks and soils. Dtructures may vary between piled rocks to post assisted log structures	As built sketches and/or survey results. Completion of 450 instream structures	$153,124.00	$14,600.00	$0.00	$167,724.00	$114,843.00	0%	8/15/24	10/1/27

4	Project Construction/Implementation: Forestry	Remove intruding conifers in 65 acres of meadow and/or adjacent areas. Use materials for in-stream structures. Residual material may be piled and burned with low intensity fire allowed to creep from pile to pile, lopped and scattered or pulled to roads for firewood or removal. 35 acres will be treated by professional contract crews at $2,500/acre, 30 acres will be partially by SRWC crews with larger material handled by contract crews at the $1,700/acre	Photo Point Monitoring before and after to document forest changes.	$164,418.00	$0.00	$0.00	$164,418.00	$123,313.50	0%	8/15/24	10/1/27
5	Project construction: culvert replacement	Replace two culverts (one in Cabin Creek and one in Rock Fence) per USFS standard plans. Cabin Creek will have an appropriate sized culvert placed and Rock Fence Creek Culvert will be removed and natural stream grade reestablished.	Culvert replacement completed to KNF satisfaction- as built report.	$0.00	$76,040.00	$0.00	$76,040.00	$0.00	0%		
6	Project Construction/Implementation: TEK	Include TEK in all Project activities. Consultation provided by QVIR. SRWC will support and coordinate	Report on TEK inclusion	$5,000.00	$5,087.00	$0.00	$10,087.00	$3,750.00	0%	8/15/24	10/1/27
7	Project Construction/Implementation: Dissemination	Disseminate innovative decision support tools developed during project by presenting at conferences	All presentation materials and resorts. Present lessons learned at a minimum of 2 events	$3,072.00	$11,492.00	$0.00	$14,564.00	$2,304.00	0%	9/1/25	10/1/27
8	Project Construction/Implementation: Collaboration	Collaborate across the state and region regarding meadow restoration	Team participate in 6 KMP and 6 Cal PBR events	$0.00	$11,492.00	$0.00	$11,492.00	$0.00	0%	8/1/24	10/1/27
9	Project Construction/Implementation: Grazing management	Grazing management workshop and field tour	Report on innovative grazing management opportunities	$13,314.00	$0.00	$0.00	$13,314.00	$9,985.50	0%	3/1/24	10/1/27
10	Project Signage	Construct and place informational signs at project site	Sign with information and acknowledging Project funders	$4,000.00	$4,680.00	$0.00	$8,680.00	$3,000.00	0%	6/1/25	10/1/27
11	Project Close Out, Inspection & Demobilization	Inspect project components and establish that work is complete. Verify that all project components have been installed and are functioning as specified will be conducted as part of construction inspection and project closeout. Conduct project completion photo monitoring. Prepare record drawings.	As-Built and Record Drawings; Project completion site photos	$5,450.00	$0.00	$0.00	$5,450.00	$4,087.50	0%	6/1/27	12/31/17
12	Project Performance Monitoring	The performance of the project will be monitored in accordance to the Monitoring Plan using the following measurement tools and methods: 1) As built drawings and mapping for instream structures, 2) Aerial photography and NVDB mapping of increases in wetted area, 3) Photo Point monitoring (ncluding game camera), 4) Increases in channel length and habitat for steelhead/trout, 5) number of outreach events and attendees, 6) Calculation of GHG benefits. Considerable additional monitoring such as changes in hydrograph, streamflow and groundwater storage will be undertaken if supplemental funding is received.	Final report with monitoring results.	$16,771.00	$0.00	$0.00	$16,771.00	$12,578.25	0%	3/1/24	12/31/27
	Total North Coast Resource Partnership IRWM Grant Request			**$488,980.00**	**$142,351.00**	**$0.00**	**$631,331.00**	**$366,735.00**			
	Percentage of Total Project Cost			**77%**	**23%**	**0%**	**100%**	**75%**			

BUDGET DETAIL

Row (a) Direct Project Administration Costs including reporting					
Project Management Type	**Personnel by Discipline**	**Number of Hours**	**Hourly Wage**	**% of Cost ***	**Total Admin Cost**
Labor	Executive Director (ED)	100	$89.44	0.02	$8,944
Labor	Admin Assistant	180	$72.80	0.03	$13,104
Labor	Bookkeeper	180	$73.00	0.03	$13,104
Labor	Project Manager (PM)	100	$89.00	0.02	$8,900
Total				**0.1**	**$44,052**
*** What is the percentage based on (including total amounts)? Total Task C ($33,114) + Task D ($408,816) =**		**n/a**			
*** How was the percentage of cost determined?**		**n/a**			

Row (b) Land Purchase/Easement

Row (c) Planning/Design/Engineering & Environmental Documentation					
Personnel (Discipline)	**Major Task Name**	**Number of Hours**	**Hourly Wage**	**Total Cost**	**cost share**
Stillwater Sciences- Engineering and Geology	Final Designs	1	$11,580.00	$11,580	
Pacific Southwest Research	Final Designs	1	$4,000.00		$4,000
SRWC PM	Final Designs	80	$72.67	$5,814	
Total Task C.1				**$17,394**	**$4,000**
SRWC MS	Monitoring plan development	40	$72.67	$2,907	
Stillwater Sciences- engineering and Geology	Monitoring plan development	1	$3,000.00	$3,000	
Pacific Southwest Research Cost share	Monitoring plan development	1	$3,600.00		$3,600
Total Task C.2				**$5,907**	**$3,600**
SRWC PM	Enviro documentation	30	$72.67	$2,180	
SRWC ED	Enviro documentation	10	$72.67	$727	
SRWC MS	Enviro documentation	10	$72.67	$727	
BBWA	Enviro documentation	1	$2,000.00	$2,000	
Total Task C.3				**$5,634**	**$0**
SRWC PM	NEPA	30	$72.67	$2,180	
KNF NEPA support Federal cost share	NEPA	1	$4,600.00		$4,600
Total Task C.4				**$2,180**	**$4,600**
SRWC Permitting specialist Cost share	Permitting	80	$84.50		$6,760
BBWA	Permitting	1	$2,000.00	$2,000	
Permit Costs	Permitting	2	$2,225.00	$4,450	
Total Task C.5				$6,450	**$6,760**
Total				**$37,564**	**$18,960**

Row (d) Construction/Implementation					
Personnel (Discipline)	**Work Task and Sub-Task (from**	**Number of**	**Hourly Wage**	**Total Cost**	
SRWC ED	Contract services	30	$72.67	$2,180	
SRWC PM	Contract services	30	$72.67	$2,180	
Total Task D.1				**$4,360**	**$0**
SRWC ED	Construction Admin	40	$72.67	$2,907	
SRWC PM	Construction Admin	160	$72.67	$11,627	
SRWC Tech	Construction Admin	0	$59.15	$0	
Stillwater Sciences- engineering and Geology	Construction Admin	1	$9,276.00	$9,276	
BBWA	Construction Admin	1	$14,044.00	$14,044	
Total Task D.2				**$37,854**	**$0**
SRWC PM	Construction In stream structures	480	$72.67	$34,882	
SRWC ED	Construction In stream structures	60	$72.67	$4,360	
SRWC Tech	Construction In stream structures	480	$59.15	$28,392	
SRWC Laborers	Construction In stream structures	1440	$58.50	$84,240	
Mileage	Construction In stream structures	2000	$0.63	$1,250	
SRWC Cost share use of equipment	Construction In stream structures	1	$14,600.00		$14,600
Total Task D.3				**$153,124**	**$14,600**
SRWC ED	Construction Forestry management	10	$72.67	$727	
SRWC Laborers	Construction Forestry management	300	$58.50	$17,550	
SRWC Tech	Construction Forestry management	50	$59.15	$2,958	
SRWC PM	Construction Forestry management	50	$72.67	$3,634	
Forestry Sub	Construction Forestry management	1	$125,000.00	$125,000	
Materials: chainsaw	Construction Forestry management	2	$1,300.00	$2,600	
Materials: Nomex	Construction Forestry management	10	$200.00	$2,000	
Materials: Misc small tools	Construction Forestry management	10	$150.00	$1,500	
Materials: Game Cameras	Construction Forestry management	6	$450.00	$2,700	
Misc field equip for each year	Construction Forestry management	3	$1,500.00	$4,500	
Mileage	Construction Forestry management	2000	$0.63	$1,250	
Total Task D.4				**$164,418**	**$0**
Secure Rural Schools	Construction Culvert Replacement	1	$76,040.00	$0	$76,040
Total Task D.5				**$0**	**$76,040**
QVIR- Contract services	Construction TEK	1	$5,000.00	$5,000	
SRWC ED cost share	Construction TEK	20	$72.67		$1,453
SRWC PM cost share	Construction TEK	50	$72.67		$3,634
Total Task D.6				**$5,000**	**$5,087**
SRWC ED Cost share	Construction- dissemination	50	$72.67		$3,634
SRWC PM Cost share	Construction- dissemination	50	$72.67		$3,634
SRWC Permitting specialist Cost share	Construction- dissemination	50	$84.50		$4,225
Stillwater Sciences-	Construction- dissemination	1	$3,072.00	$3,072	
Total Task D.7				**$3,072**	**$11,492**
SRWC ED Cost share	Construction- collaboration	50	$72.67		$3,634
SRWC PM Cost share	Construction -collaboration	50	$72.67		$3,634
SRWC Permitting specialist Cost share	Construction -collaboration	50	$84.50		$4,225
Total Task D.8				**$0**	**$11,492**
SRWC PM	Constructing- grazing management	60	$72.67	$4,360	
SRWC ED	Constructing- grazing management	20	$72.67	$1,453	
Innovative Fencing consultant	Constructing- grazing management	1	$5,000.00	$5,000	
The Wildland Conservancy: participation stipends	Constructing- grazing management	1	$2,500.00	$2,500	
Total Task D.9				**$13,314**	**$0**
Materials Signage	Signage	1	$4,000.00	$4,000	
Volunteer Signage construction	Signage construction	80	$58.50		$4,680
Total Task D.10				**$4,000**	**$4,680**
SRWC ED	Project close out	25	$72.67	$1,817	
SRWC PM	Project close out	25	$72.67	$1,817	
SRWC MS	Project close out	25	$72.67	$1,817	
Total Task D.11				**$5,450**	**$0**
SRWC ED	Project Monitoring	50	$72.67	$3,634	
SRWC PM	Project Monitoring	50	$72.67	$3,634	
SRWC MS	Project Monitoring	60	$72.67	$4,360	
BBWA	Project Monitoring	1	$2,000.00	$2,000	
Stillwater	Project Monitoring	1	$3,144.00	$3,144	
Total Task D.12				**$16,771**	
Total				**$407,363**	**$123,391**
Materials Total				$7,600.00	
Mileage Total				$2,500	
Grand Total				**$488,979**	**$142,351**

Difference between total here and on Tab A due to rounding.

NORTH COAST RESOURCE PARTNERSHIP

ORGANIZATION INFORMATION

1. **Project Name:**
   East Fork Scott River Green Infrastructure Mountain Meadows Project

2. **Applicant Organization Name:**
   Scott River Watershed Council (SRWC)

3. **Contact Name/Title**
   Name: Betsy Stapleton
   Title: Project Permitting and Development Specialist
   Email: Betsy@scottriver.org
   Phone Number (include area code): (707) 499-7082

4. **Organization Address (City, County, State, Zip Code):**
   514 N. Highway 3, Etna, Ca. 96027

5. **Organization Type**

☐ Public agency
☒ 501(c)(3) Non-profit organization
☐ Public utility
☐ Federally recognized Indian Tribe
☐ California State Indian Tribe listed on the Native American Heritage Commission's California Tribal Consultation List
☐ Mutual water company
☐ Other:

6. **Authorized Representative** (if different from the contact's name)
   Name: Charnna Gilmore
   Title: Executive Director
   Email: Charnna@scottriver.org
   Phone Number (include area code): (530) 598-2733

7. **List all projects the organization is submitting to the NCRP for this Solicitation in order of priority.**
   This is the only project SRWC is submitting to this solicitation.

8. **Organization Information Notes:**

The Scott River Watershed Council (SRWC) is a locally based NGO in the Scott Valley of Siskiyou County. We are deeply committed to the ecological and human communities of the watershed and embrace a stewardship mindset in all we do. SRWC has a 10 member Board of Directors, all

of whom live and work in the Valley. In addition to ecological planning, monitoring and restoration, SRWC supports the Etna Community Garden, the Etna Community Compost Program, and the Youth Summer Environmental Studies program, an educational and workforce training program for high school age youth. Every year, SRWC hosts the Scott Watershed Informational Forum which brings together science based presentations on natural resource issues relevant to the community. A wide range of topics have been offered and the event is now 3 days long with attendance increasing each year. SRWC has been a leader in innovative restoration practices, having installed the first Beaver Dam Analogues (BDAs) in California in 2014. We are founding members of the Klamath Meadows Partnership (KMP) and California Process Based Restoration Network (Cal PBR). We have been the driving force behind the revitalization of the Klamath Fisheries Collaborative, which will integrate fisheries monitoring data from passive integrated responders (PIT) across the entire Klamath Basin.

Please access our website, SCOTTRIVER. ORG, for more details on the Programs, Staff and Board of SRWC.

ELIGIBILITY

1. North Coast Resource Partnership Goals and Objectives

GOAL 1: INTRAREGIONAL COOPERATION & ADAPTIVE MANAGEMENT

☐ Objective 1 - Respect local autonomy and local knowledge in Plan and project development and implementation

☐ Objective 2 - Provide an ongoing framework for inclusive, efficient intraregional cooperation and effective, accountable NCRP project implementation

☒ Objective 3 - Integrate Traditional Ecological Knowledge in collaboration with Tribes to incorporate these practices into North Coast Projects and Plans

GOAL 2: ECONOMIC VITALITY

☒Objective 4 - Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving built and natural infrastructure systems and promoting adequate housing

☐ Objective 5 - Conserve and improve the economic benefits of North Coast Region working landscapes and natural areas

GOAL 3: ECOSYSTEM CONSERVATION AND ENHANCEMENT

☒ Objective 6 – Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity

☒ Objective 7 - Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes

GOAL 4: BENEFICIAL USES OF WATER

☐ Objective 8 - Ensure water supply reliability and quality for municipal, domestic, agricultural, Tribal, and recreational uses while minimizing impacts to sensitive resources

☐ Objective 9 - Improve drinking water quality and water related infrastructure to protect public health, with a focus on economically disadvantaged communities

☐ Objective 10 - Protect groundwater resources from over-drafting and contamination

GOAL 5: CLIMATE ADAPTATION & ENERGY INDEPENDENCE

☒ Objective 11 - Address climate change effects, impacts, vulnerabilities, including droughts, fires, floods, and sea level rise. Develop adaptation strategies for local and regional sectors to improve air and water quality and promote public health

☒ Objective 12 - Promote local energy independence, water/ energy use efficiency, GHG emission reduction, and jobs creation

GOAL 6: PUBLIC SAFETY

☒ Objective 13 - Improve flood protection, forest and community resiliency to reduce the public safety impacts associated with floods and wildfires

2. Does the project have a minimum 15-year useful life?

a) ☒ yes ☐ no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions should the project be selected as a Priority Project?

☒ yes ☐ no

3. Other Eligibility Requirements and Documentation

CALIFORNIA GROUNDWATER MANAGEMENT SUSTAINABILITY COMPLIANCE

a) Does the project directly affect groundwater levels or quality?

☒ yes ☐ no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions including a Groundwater Sustainability Agency letter of support, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

☒ yes ☐ no

CASGEM COMPLIANCE

a) Does the project overlie a medium or high groundwater basin as prioritized by DWR?

☐ yes ☒ no

b) If yes, list the groundwater basin and CASGEM priority:

c) If yes, please specify the name of the organization that is the designated monitoring entity:

d) If yes, please specify whether the local Groundwater Sustainability Agency has endorsed the project:

URBAN WATER MANAGEMENT PLAN

a) Is the organization required to file an Urban Water Management Plan (UWMP)?
☐ yes ☒ no

b) If yes, has DWR verified the current 2020 UWMP?
☐ yes ☐ no

c) If the 2020 UWMP has not been verified by DWR, explain and provide anticipated date for verification:

d) Has DWR verified a water loss audit report in accordance with SB 555 as submitted by the urban water supplier?
☐ yes ☐ no

e) Does the urban water supplier meet the water meter requirements of CWC 525?
☐ yes ☐ no

f) Does the urban water supplier meet the State Water Resources Control Board's Water Conservation and Production Reporting requirement?
☐ yes ☐ no

g) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?
☐ yes ☐ no

AGRICULTURAL WATER MANAGEMENT PLAN

a) Is the organization – or any organization that will receive funding from the project – required to file an Agricultural Water Management Plan (AWMP)?
☐ yes ☒ no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?
☐ yes ☐ no

SURFACE WATER DIVERSION REPORTS

a) Is the organization required to file State Water Resources Control Board (SWRCB) annual surface water diversion reports per the requirements in CWC Part 5.1?
☐ yes ☒ no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?
☐ yes ☐ no

STORM WATER MANAGEMENT PLAN

a) Is the project a stormwater and/or dry weather runoff capture project?
☐ yes ☒ no

b) If yes, does the project benefit a Disadvantaged Community with a population of 20,000 or less?
☐ yes ☐ no

c) If this is a stormwater/dry weather runoff project but does not benefit a small DAC population, please provide documentation that the project has been included in a Stormwater Resource Plan that has been incorporated into the NCRP IRWM Plan:

d) If no, will the organization be able to provide documentation that the project is included in a Stormwater Resource Plan that has been incorporated into the NCRP IRWM Plan, should the project be selected as a Priority Project?
☐ yes ☐ no

4. Eligible Project Type under 2022 IRWM Grant Solicitation

- ☐ Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
- ☐ Water-use efficiency and water conservation
- ☐ Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects
- ☐ Regional water conveyance facilities that improve integration of separate water systems
- ☒ Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability
- ☐ Stormwater resource management projects to reduce, manage, treat, or capture rainwater or stormwater
- ☐ Stormwater resource management projects that provide multiple benefits such as water quality, water supply, flood control, or open space
- ☐ Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
- ☐ Stormwater resource management projects to implement a stormwater resource plan
- ☐ Conjunctive use of surface and groundwater storage facilities
- ☐ Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
- ☒ Improvement of water quality, including drinking water treatment and distribution, groundwater and aquifer remediation, matching water quality to

water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff

- ☐ Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537)
- ☐ Other:

5. **Describe how the project provides a benefit that meets at least one of the Statewide Priorities as defined in DWR's Final 2022 Guidelines (see page 7) and Tribal priorities as defined by the NCRP?**

Priority 1: Utilize natural infrastructure such as forests and floodplains.

This Project will improve natural infrastructure by increasing water storage in two upper watershed stream and meadow systems. The Project will develop tools and techniques to rapidly assess and implement such projects at the watershed scale which can contribute to sustainably meeting water management needs. The Project will restore and improve both forests and mountain meadow ecosystems. It will connect two streams to their floodplains, thereby reducing downstream flood risk. It will restore mountain meadow wetlands and rare fen/bog habitats; improve water quality by reducing grazing related surface water contamination by manure; sequester sediment and carbon on the floodplains; and provide hyporheic cooling of water.

Priority 3: Drought Preparedness

The Project will provide ecosystem restoration of rare and high value habitats in the East Fork Scott River upper watershed by connecting streams to their floodplains with simple low tech structures. Doing so will slow water run off, thereby allowing the water to sink into groundwater storage to be slowly returned to the stream system during summer baseflow.

Priority 4. Climate Resilience

The Project addresses the anticipated climate change driven conversion of regional precipitation from snow to a higher percentage of rain. Due to the current degradation of the upper watersheds with concentration of flow, the rain will rapidly run off as compared to the slow melting of snow, resulting in an earlier and more precipitous decline in the spring run off hydrograph. Reducing the high rate of transportation of rain by placing instream structures and forcing water into longer historical flow paths and onto the floodplain will allow the capture and storage of rain with slow release into the summer. Research has shown that this type of upper watershed storage can mitigate the snow to rain conversion effects on streamflow to a significant extent (Hunt et al).

Additionally, the Project will decrease GHG production. The GHG model for the project primarily uses the Air Resources Board (ARB) Benefits Calculator Tool spreadsheet for mountain meadows. It is based on the premise that re-establishing hydrological connectivity between streams and surrounding meadow complexes will increase plant biomass above and below ground, increase soil organic matter, and thereby improve soil capacity to sequester GHGs from the atmosphere. (Blackburn 2021). Restoration will also arrest the process of degradation, reducing oxidation of organic soils, thereby reducing carbon emissions. The project will achieve net GHG benefits in four ways: 1) increasing soil organic matter; 2) preventing soil organic matter loss; 3) restoration of riparian habitat (planting riparian species; and 4) thinning forest stands for forest health and resilience including removing encroaching meadow conifers. The result of the project will be an increase in net carbon sequestration, taking into account net GHG emissions compared to non-restored conditions within the project area that would otherwise continue to degrade, and lead to oxidation of organic soils, decreased carbon sequestration, and increased emissions of carbon dioxide (CO2). The distribution of vegetation types in mountain meadows reflects seasonal differences in groundwater levels and litter decomposition (Allen-Diaz 1991, Merrill et al. 2006, Loheide and Gorelick 2007). Thus, degraded Klamath Mountain meadows experience a radical change in plant community type distribution and overall plant biomass after restoration. In many cases, sparse cover of annual grasses and forbs is replaced with dense thatch of sedge and willow species with similarly dense rooting structures (Chambers and Miller 2004, Lindquist and Wilcox 2000). In restored wet or very moist meadows, this change in meadow plant community structure co-occurs with an increase in net primary productivity (NPP) and a decrease in aerobic decomposition rates of fine roots and above ground litter. These two changes (high NPP rates and slow decomposition) result in increased soil organic matter content and represent carbon sequestration. The project features 65 acres of mountain meadow and adjacent dry meadows and forest restoration and in-stream restoration at critical locations along 11 miles of perennial watercourses. The project will include thinning treatment of encroaching conifers onto wet and dry meadows for forest health and resilience, as well as meadow benefits.

Using the ARB Spreadsheet for Land Restoration (Mountain Meadows) a total of 4,754 MTCO2e storage increase can be expected for the mountain meadow restoration.

Priority 5. Strengthen partnerships with local, federal, and Tribal governments, water agencies and irrigation districts, and other stakeholders.

The Project embraces collaboration and partnership. Quartz Valley Indian Community of the Quartz Valley Reservation of California (QVIR) is a funded and key Project member and will provide overall guidance to ensure the Project adheres to Traditional Ecological Knowledge and cultural values. Local entities are involved via the NCRP support of the Project over many years, as evidenced by their on-going provision of technical support funds, and Siskiyou County Groundwater Sustainability Agency has included the Project in its sustainability plan for the Scott River. The Klamath National Forest is the leading Project partner and the landowner, and is the ultimate Project decision maker. United States Forest Service Region 5 USFS staff are involved as well as USFS Pacific Southwest Research Station personnel. The grazing lease holder, the Wildlands Conservancy, and their leasehold manager, will participate in the grazing management planning. The Regional Water Quality Control Board and California Department of Fish and Wildlife are supportive of the Project. The Project will contribute to regional and statewide collaboration. The Project team is highly engaged with the Klamath Meadow Partnership and there is an explicit plan to share lessons learned from the calibration of remote sensing planning tools to be undertaken in this Project with subsequent application to the region wide meadow identification and mapping project that is planned to be undertaken via KMP. Additionally, the Project team is highly involved in the Cal-PBR Network and anticipates using this Project as a training site for Cal PBR and to share Project lessons learned with this state-wide restoration community.

NORTH COAST RESOURCE PARTNERSHIP

CERTIFICATION OF AUTHORITY

By signing below, the Authorized Representative executing the certificate on behalf of the Project Sponsor affirmatively represents that s/he has the requisite legal authority to do so on behalf of the Project Sponsor. The Authorized Representative executing this proposal on behalf of the project sponsor understands that the NCRP is relying on this representation in receiving and considering this proposal. The person signing below hereby acknowledges that s/he has read the entire NCRP 2022 Project Review and Selection Process Guidelines and the NCRP 2022 Proposition 1 IRWM Round 2 Project Application & Instructions documents and has complied with all requirements listed therein.

Official Authorized to Sign for Proposal

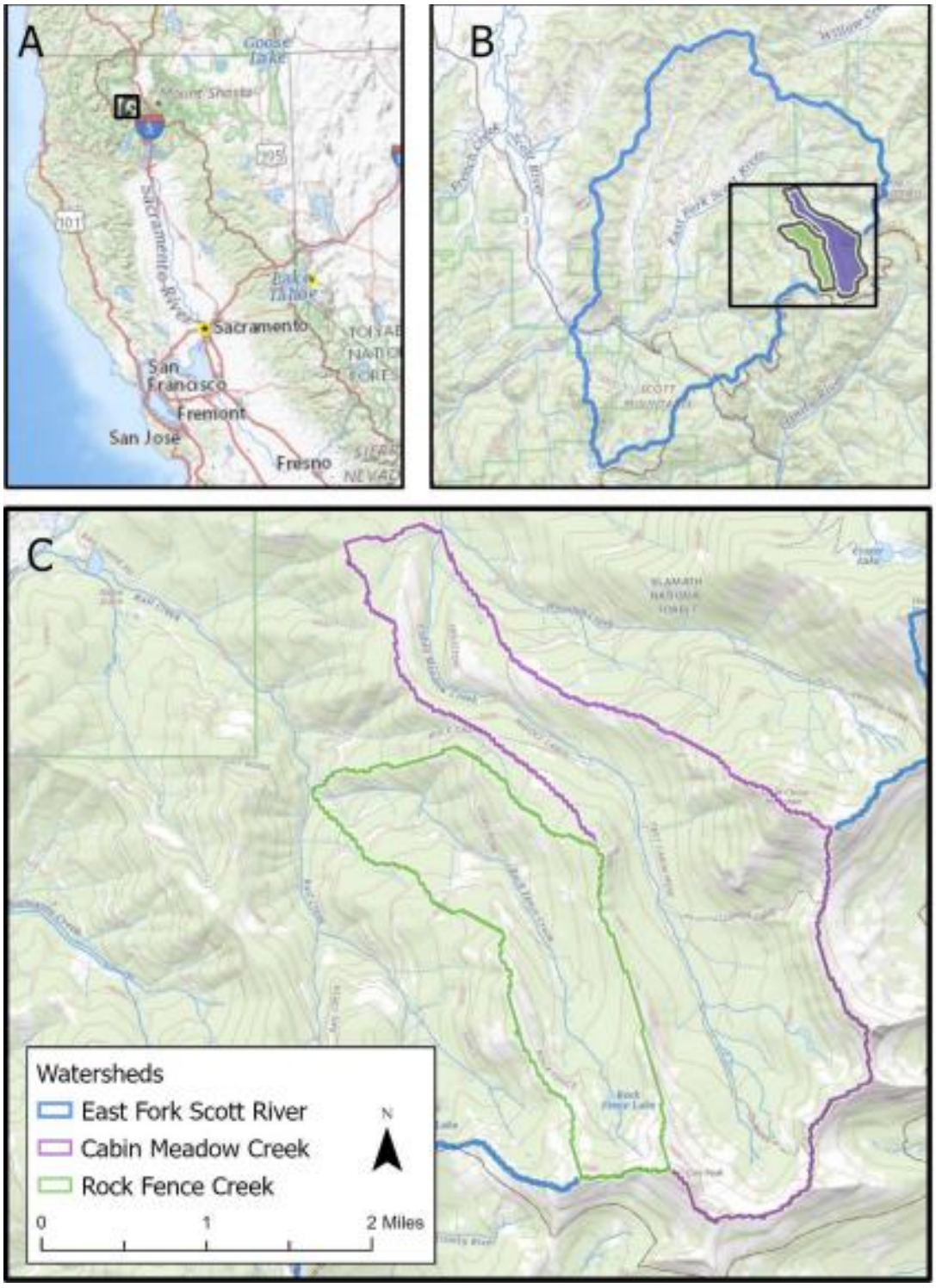
Charnna Gilmore

Signature

November 2, 2022

Date

Scott River Watershed Council
East Fork Scott River Green Infrastructure Mountain Meadows Project
Technical Supplement


A
B
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Sacramento
San Francisco
Fremont
San Jose
Fresno
Watersheds
East Fork Scott River
Cabin Meadow Creek
Rock Fence Creek
N
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1
2 Miles

Location Maps

COUNTY OF SISKIYOU

Flood Control & Water Conservation District

P.O. Box 750 • 1312 Fairlane Road, Yreka, CA 96097
Phone: (530) 842-8012, Fax Number: (530) 842-8013

October 27, 2022

North Coast Resource Partnership
Proposition 1 IRWM Grant Program
ATTN: Katherine Gledhill
PO Box 262
Healdsburg, CA 95448-0262

Re: Scott River Mountain Meadow Restoration Project

To Whom It May Concern,

The Siskiyou County Flood Control and Water Conservation District, which acts as the Groundwater Sustainability Agency (GSA) for the Scott Valley groundwater basin, is writing in support of the ***Scott River Mountain Meadow Restoration Project*** being submitted by the Scott River Watershed Council. As many groundwater basins within California have done, the Siskiyou County GSA has recently completed the Scott River Groundwater Sustainability Plan (GSP) which outlines multiple projects and management actions (PMAs) necessary to achieve the Basin's sustainability goals. Scott River Mountain Meadow Restoration Project is tied to Tier II PMAs, "East Fork Scott Project" and the "Upslope Water Yield Project", mentioned in Chapter 4 of the Scott Valley GSP, and are planned for near-term initiation and implementation. These projects support GSP objectives by increasing water yield from the upper watershed, especially the East Fork and French Creek, through green infrastructure. Green infrastructure may include: fuel reduction, road improvements, canopy opening to manage snow shade and accumulation, and other actions that reduce direct runoff. These actions will assist in achieving the thresholds and objectives for the interconnected surface water sustainability indicator and avoiding additional stresses on interconnected surface water and their groundwater dependent habitats.

The SRWC has been an active, community-based watershed restoration coordination group since 1992 and is recognized by the GSA as an important partner in promoting watershed restoration and forest health. The GSA, supports the Scott River Watershed Council's (SRWC) project application and believes water retention capacity in upland meadows is an important hydrologic reserve that may help augment water supply in late spring to early summer which provides benefit to the entire Scott River watershed.

Sincerely,

DocuSigned by:
Brandon A Criss

Brandon A. Criss, Chair

Siskiyou County Flood Control and Water Conservation District

Quartz Valley Indian Reservation

October 17, 2022

RE: Letter of Support for the Scott Watershed Mountain Meadow Restoration Project

To Whom it May Concern,

We, the Quartz Valley Indian Reservation (QVIR), enthusiastically support the application of the Scott River Watershed Council (SRWC) **"Scott River Mountain Meadow Restoration Project."** The SRWC has been an active community-based watershed restoration coordination group since 1992. The QVIR recognizes SRWC as an important partner in promoting watershed restoration and forest health in the Scott River Basin. The Scott River Watershed is host to some of the most significant spawning and rearing habitat for the Southern Oregon Northern California Coastal (SONCC) Coho Salmon in the Klamath Basin and supports other cold-water dependent species including Chinook, Salmon Steelhead Trout, and Pacific Lamprey. The Scott River has also been listed on the Clean Water Act Sec1tion 303d list of impaired waters by the United States Environmental Protection Agency as impaired for elevated instream temperature, fine sediment, and biostimulatory conditions resulting in depressed dissolved oxygen levels.

A key driver of these impairments is low summer flow volumes due to groundwater pumping and hydromodification for agricultural production and flood control. The Scott River Watershed's annual water budget also depends heavily on spring snow melt. As the impacts from climate change continue, it is expected that this vital snowpack will decrease.

Water retention capacity in upland meadows is an important hydrologic reserve that may help buffer the impacts of climate change by augmenting water supply in late spring and early summer and support the development and preservation of cold-water refugial areas near the mountain front of the valley. SRWC has identified public and private forest lands that offer unique opportunities to investigate the capacity of upland areas in the Scott River Watershed to support these outcomes and seeks to prioritize process-based restoration approaches to reduce fuel loading, conifer encroachment, and the loss/simplification of meadow habitat. The information produced from this approach can then be applied to the wider Klamath Basin and North Coast Region of California and significantly accelerate the scale and scope of restoration to achieve landscape scale, multiple ecological benefits.

QVIR is familiar with the project area, the proposed methods for assessment and m9nitoring, and enthusiastically supports SRWC's application. The technical team assembled for the Project is of exceptional quality and contains the capacity to execute the Project. If you have any questions, feel free to contact me at crystal.robinson@qvir-nsn.gov or 530-468-5907 ext 318.

Sincerely,

Crystal Robinson

Crystal Robinson
Environmental Director
Quartz Valley Indian Reservation

Administration: 530-468-5907 Fax: 530-468-5908

13601 Quartz Valley Road, Fort Jones, CA 96032

California Water Boards

Gavin Newsom
Governor

Jared Blumenfeld
Secretary for
Environmental Protection

North Coast Regional Water Quality Control Board

October 27, 2022

North Coast Resource Partnership
2022 Proposition 1 IRWM Round 2
kgledhill@westcoastwatershed.com

Subject: Letter of Support for the Scott River Meadow Restoration Project

Dear Katherine Gledhill,

Please accept this letter of support for the Scott River Watershed Council's (SRWC) Scott River Meadow Restoration (Project) and its proposal for grant funding through the 2022 Proposition 1 IRWM Grant Program. The Project will use innovative scientific assessment tools to plan and implement the restoration of two high value mountain meadow stream systems in Siskiyou County to improve streamflow, water storage, ecological function, climate change resilience/adaptation, and public use. The outcome will be 450 in-stream structures to improve in-stream, floodplain and meadow conditions and 65 acres of wet and dry meadow conifer and

The North Coast Regional Water Quality Control Board (Regional Water Board) will participate in the Project's Technical Advisory Committee throughout the planning and design phases and will work with the SRWC to identify efficient permitting and California Environmental Quality Act (CEQA) compliance pathways. The Regional Water Board intends to serve as the CEQA Lead Agency. The Project will be eligible for regulatory coverage under the Statewide Restoration General Order. Pursuant to the requirements of CEQA, a Programmatic Environmental Impact Report has been produced for the General Order and will provide CEQA coverage for projects enrolled under the General Order.

The Regional Water Board recognizes this Project's important role in addressing the water quality impairments identified in the Total Maximum Daily Loads (TMDLs) for the Scott River related to the legacy impacts from historic mining, logging, and road building, as well as the benefits it will provide threatened species such as Cascades frog (*Rana cascadae*) and California Pitcher Plant (*Darlingtonia californica*).

We appreciate the opportunity to express our support for the Scott River Meadow Restoration Project. Please contact Jake Shannon at jacob.shannon@waterboards.ca.gov with any questions.

Sincerely,

Digitally signed by Jonathan Warmerdam
Date: 2022.10.27 16:36:13 -07'00'

Matthias St. John
Executive Officer

United States Department of Agriculture | Forest Service | Klamath National Forest
Salmon/Scott River Ranger District
11263 North Hwy 3
Fort Jones, CA 96032
530-468-5351
TDD: 530-468-1298

File Code: 1950
Date: February 2, 2022

Landowner Access Agreement for Klamath National Forest for Scott River Watershed Council Restoration Projects

To Whom It May Concern:

This letter is to confirm that, as the primary public land manager in the Scott River watershed, the Klamath National Forest is aware of and in support of the Scott River Watershed Council's proposed projects on federally managed lands:

1) Grouse Creek Floodplain Restoration Project
2) East Fork Scott River Meadows Project
3) Big Meadows Aspen Restoration Project
4) Meeks Meadow Restoration Project

The Klamath National Forest grants access to the Scott River Watershed Council and its project subcontractors, as well as California Department of Fish and Wildlife, North Coast Regional Waterboard and NOAA Fisheries representatives, to develop restoration projects, evaluate site pre- and post-project conditions, and perform the work necessary to complete the aforementioned projects once funding is received.

Sincerely,

LUIS PALACIOS
Digitally signed by LUIS PALACIOS
Date: 2022.02.03 14:08:10 -08'00'

Luis Palacios
District Ranger

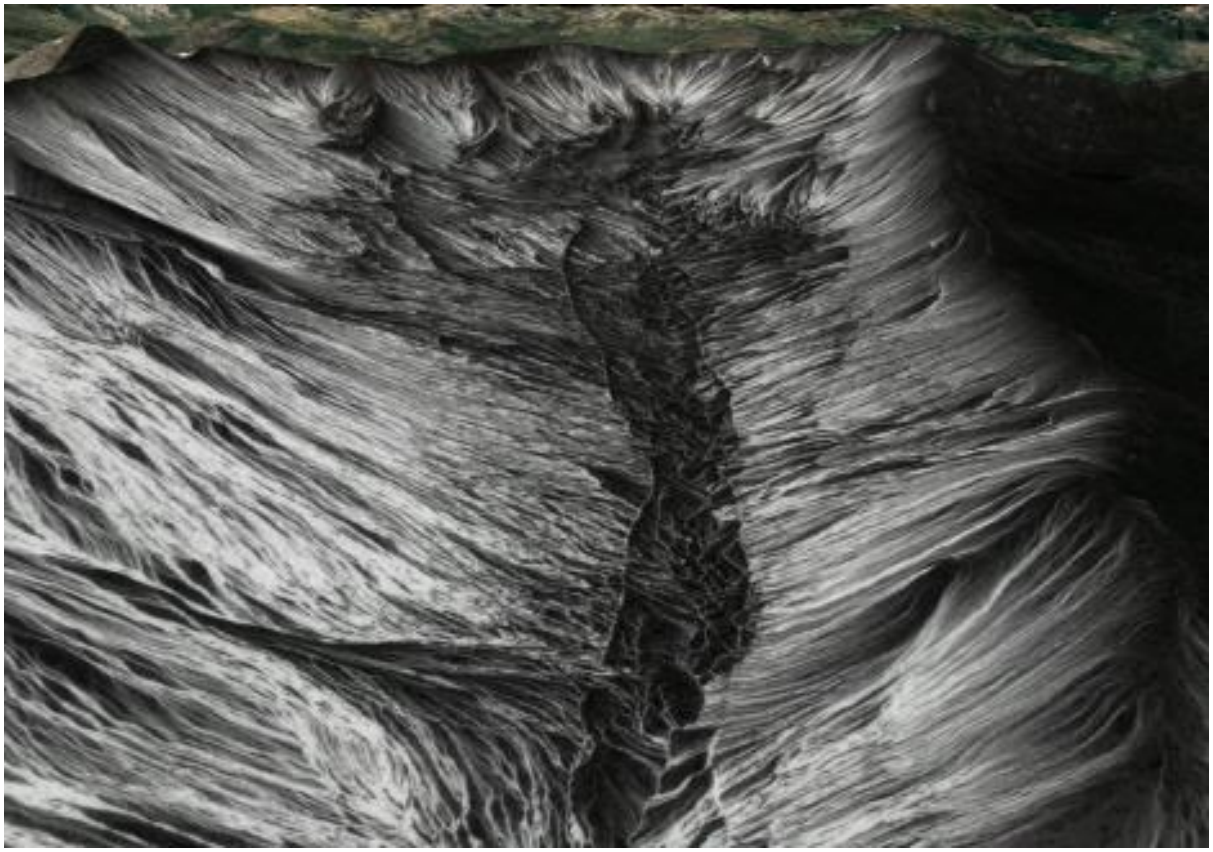


Figure 1:. LiDAR-derived flow accumulation paths (white lines) based on a D-infinity flow direction algorithm that allows for flow difluences overlaid onto a hillshade raster for Cabin Meadow Creek. Two roads on either side of Cabin Meadow Creek likely contribute to consolidation of flows entering the floodplain. Oblique aerial view looking upstream into Cabin Meadow Creek watershed.

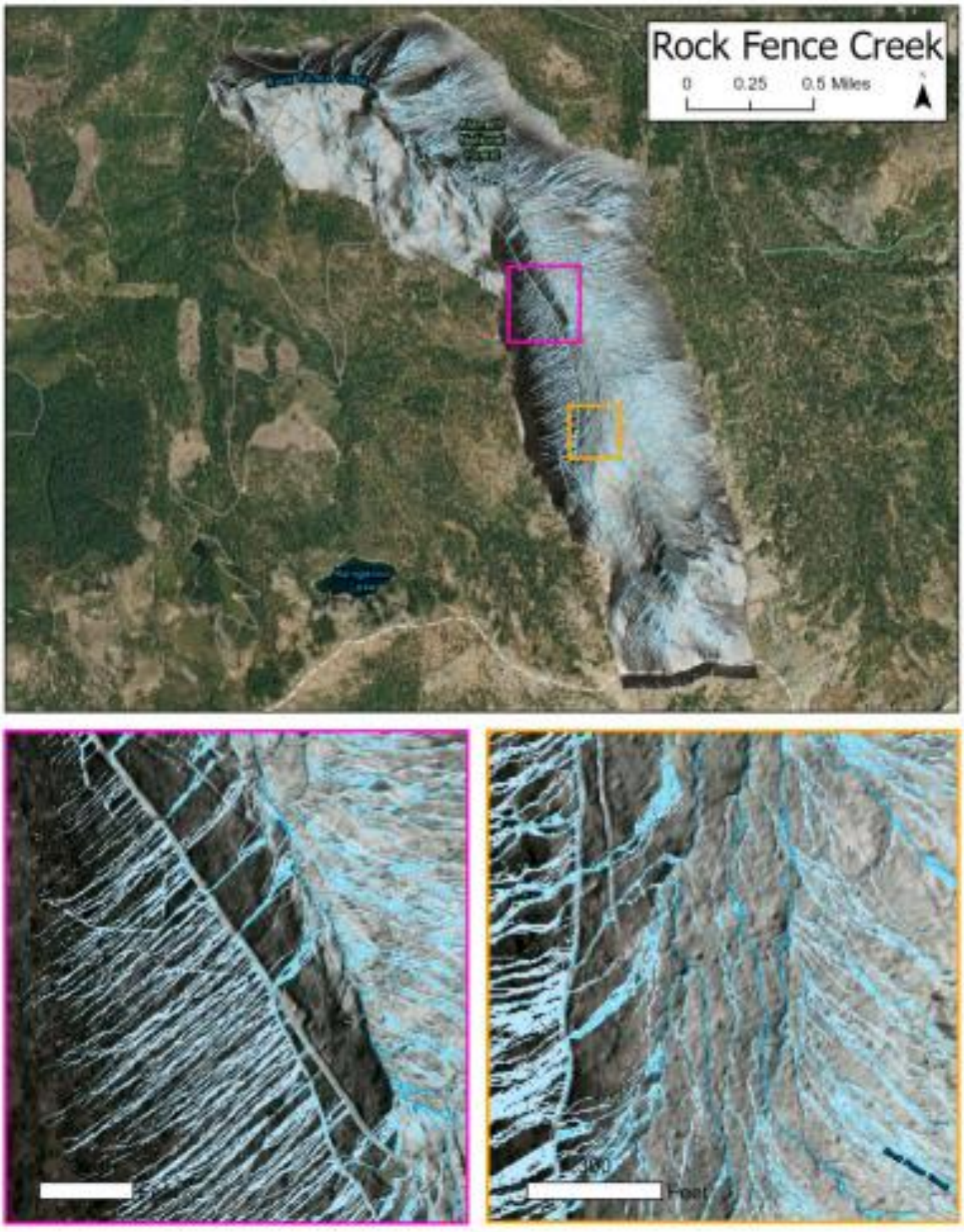


Figure 2: **(A)** LiDAR-derived flow accumulation paths based on a D-infinity flow direction algorithm that allows for flow difluences overlaid onto a hillshade raster for Rock Fence Creek. **(B)** Primary road within the Rock Fence Creek watershed shows significant flow consolidation. **(C)** Existing meadow lobe that currently supports flow within a couple incised channels (arrows). This area shows excellent potential for hydrological recovery through road mitigation and flow spreading to encourage water retention

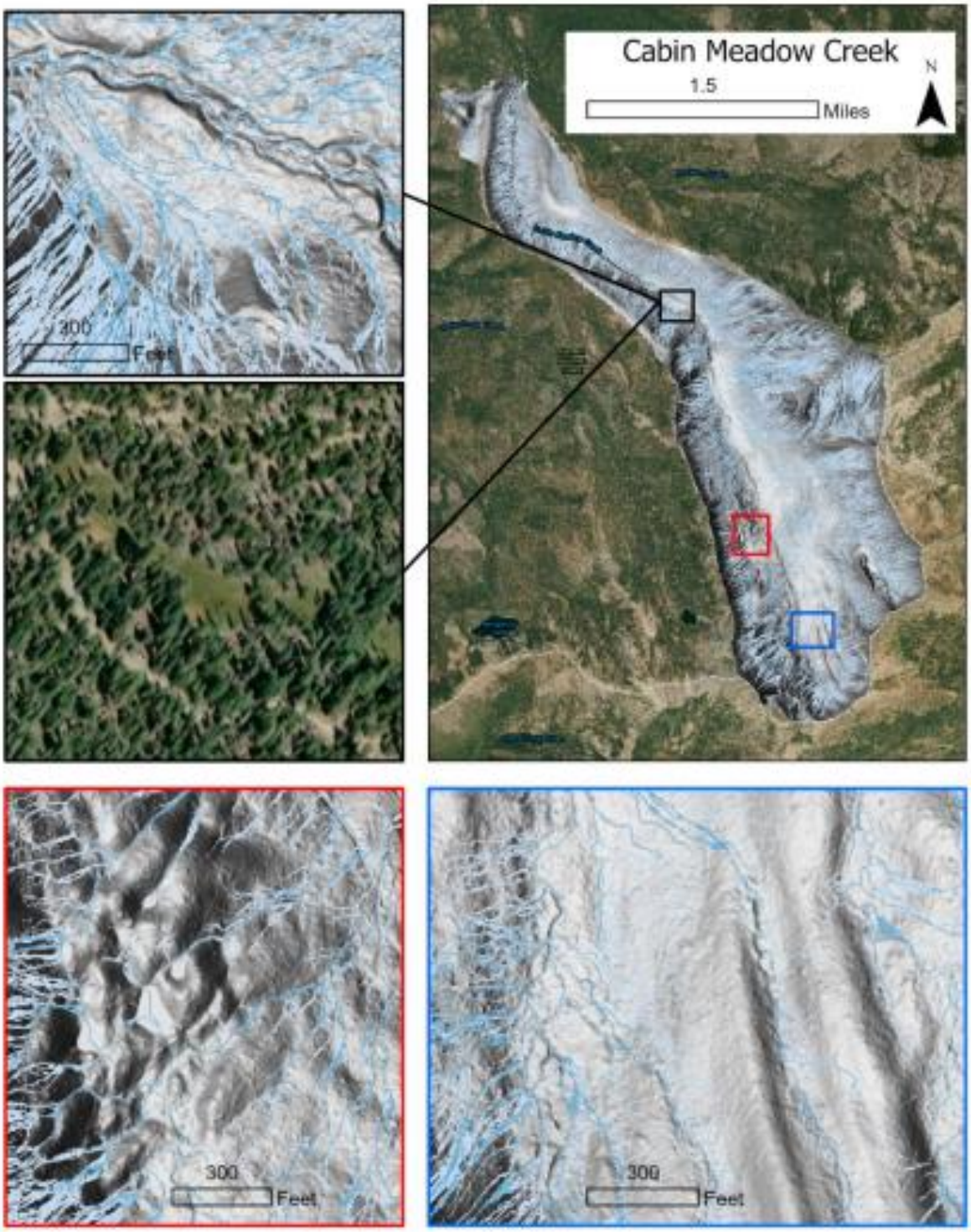


Figure 3: **(A)** LiDAR-derived flow accumulation paths for Cabin Meadow Creek. **(B)** Cross-section and flow path analysis for a meadow lobe shows modified flow paths due to the upslope road that consolidates flows through the meadow above Cabin Meadow Creek. **(C)** Interesting aquatic features upslope of main channel should be investigated for restoration opportunities to extend hydroperiods of surface water. **(D)** Low-gradient meadow complex in upper watershed appears

impacted by incised channels and flow routes that may be contributing to the drying of the meadow complex.

Figure 4. Image of meadow lobe (Figure 2C) in Rock Fence Creek watershed with remnant *Darlingtonia* fen habitat and dryer (potentially dewatered) meadow zone in the foreground.

Figure 5. Aerial view of meadow lobe surrounded by roads with a single incised channel through the meadow. This meadow is in the lower Rock Fence watershed.

Figure 7: Step 1: Generate LiDAR derived flow path. This flow path near the top of the Cabin Meadow watershed appears to flow through a series of small meadow lobes and conifer forests. Nearby to the west there appears to be a dry meadow lobe

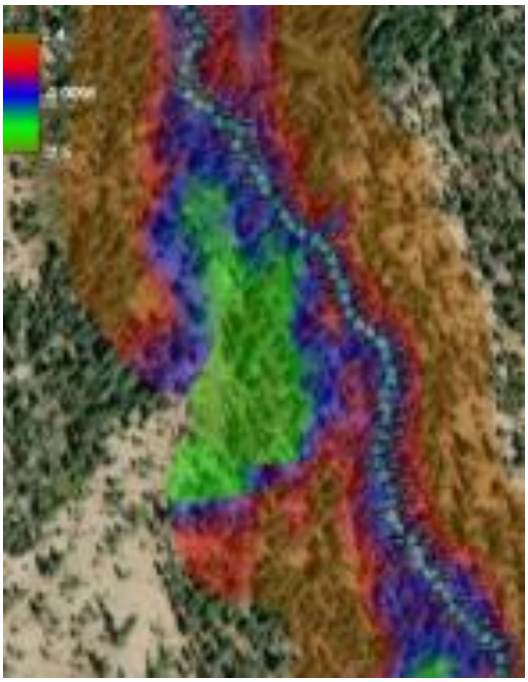


Figure 8: Step 2: Generate detrended elevation raster based on procedurally generated cross sections. Each numbered blue dot along the stream corresponds to a cross section. Green color represents terrain near the flow path that is lower in elevation than the existing path. Blue is similar elevations and red/orange are areas higher in elevation than the nearby stream. Greens and blues show potential zones of hydrologic reconnectivity.

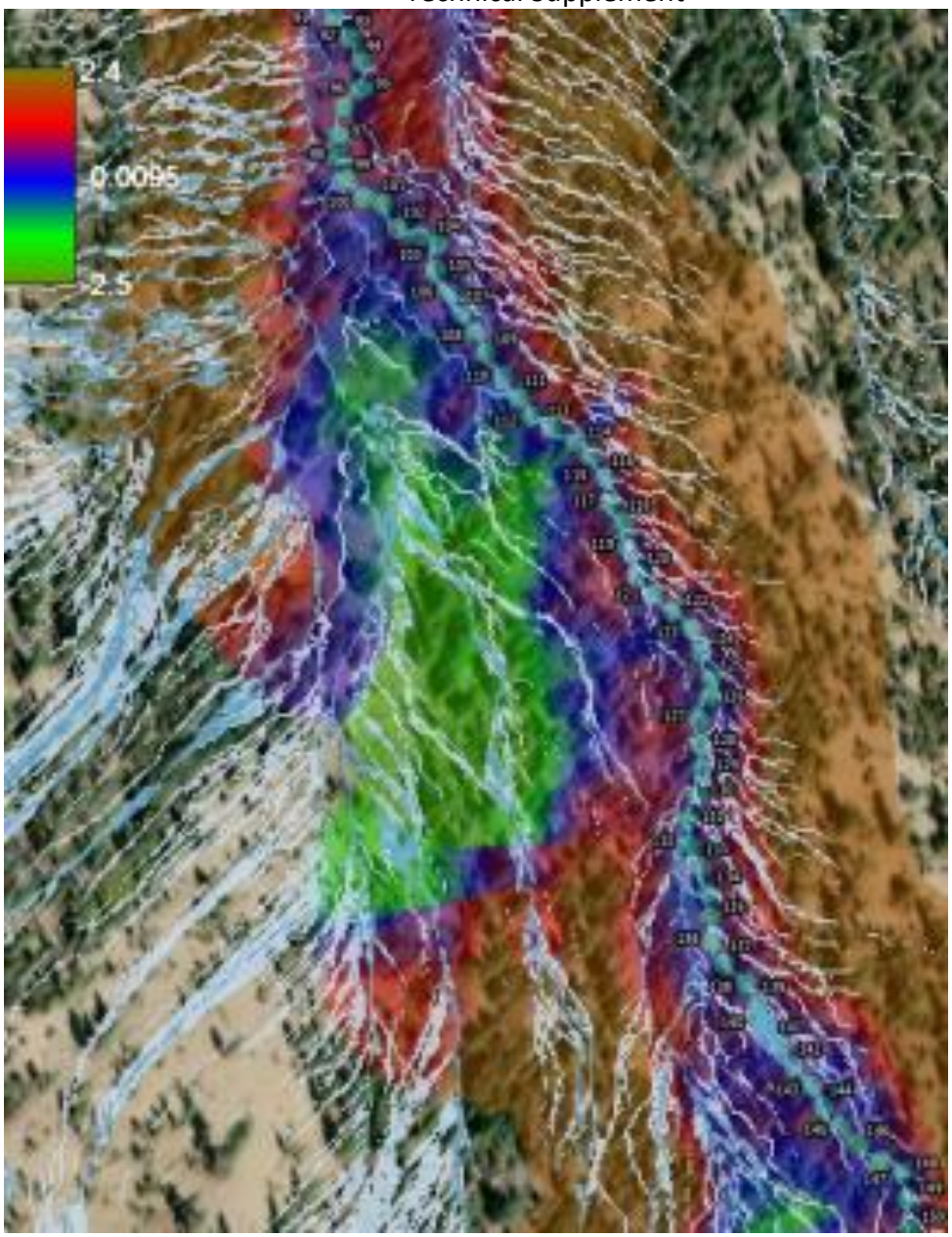


Figure 9: Step 3: Use small-threshold accumulation flow paths to visualize flow/connection potentials between the detrended zones and current flow path. Transects 130 - 122 have great potential for potential hydrologic "switch points" or zones to encourage difluences that could rewet portions of the dry meadow that are seen in step 1. Cross-section #122 is shown below in Figure 10.

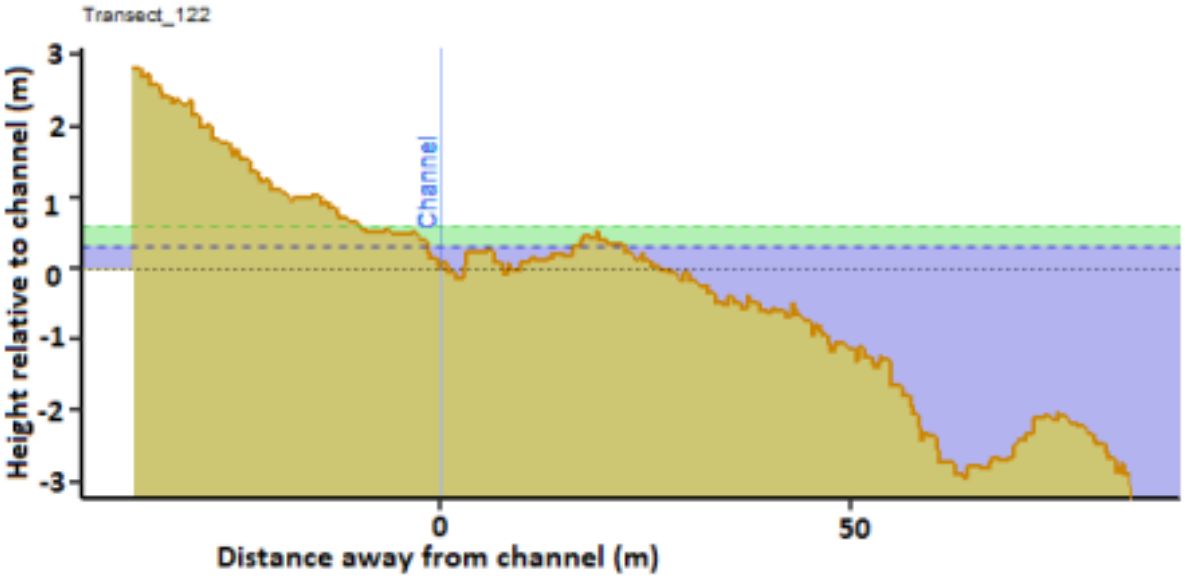


Figure 10: Cross-section of transect #122 in Cabin Meadow Creek shows a channel perched on a slope that with minimal restoration effort (~1.5 ft vertical lift) could flow into a meadow that would likely benefit from the additional hydrological connectivity. Brown color represents ground surface. Blue zone highlights areas above ground that are no more than 1ft above the channel height. Green zone indicates a band of elevations between 1 ft and 2 ft above the channel height.

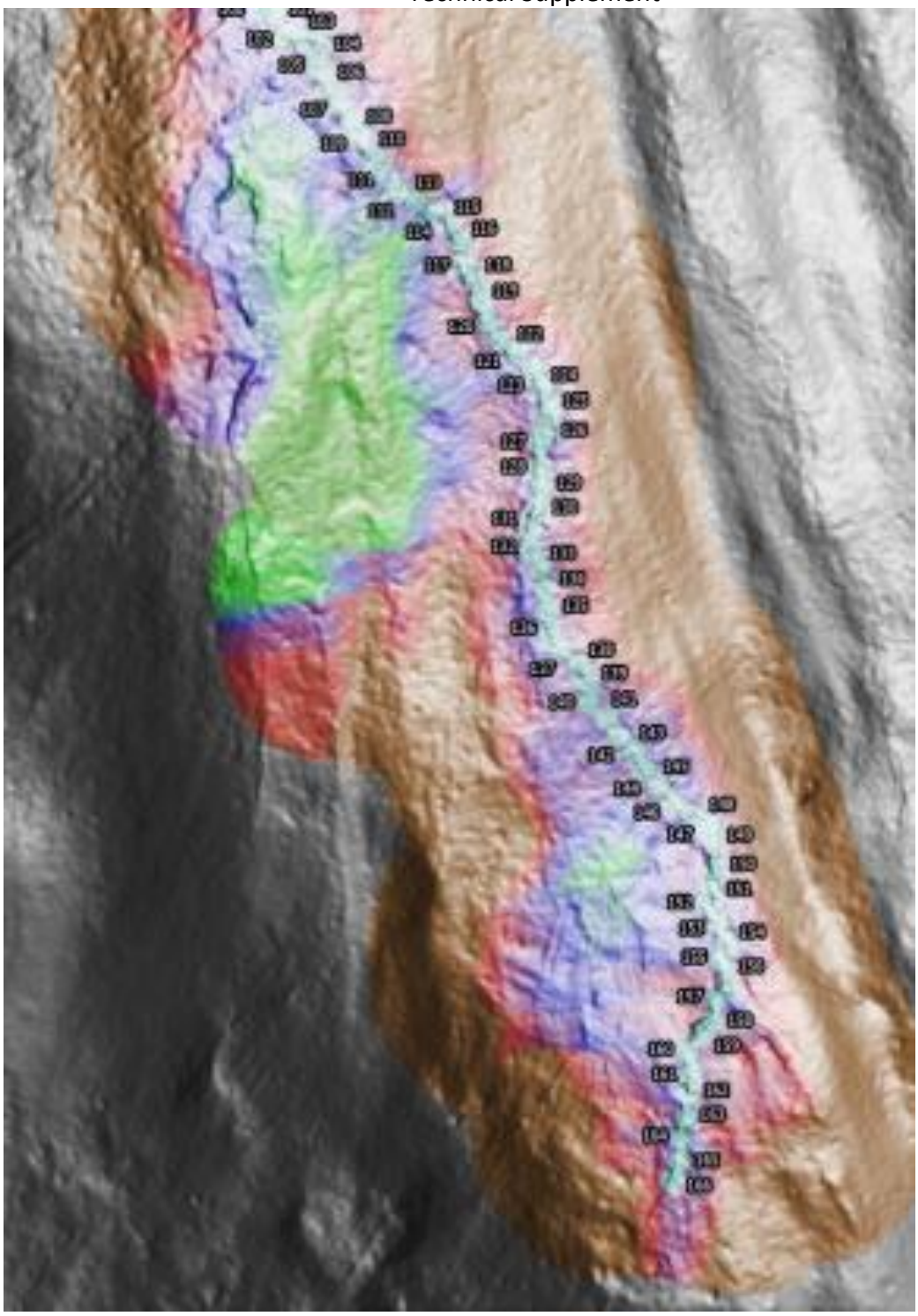


Figure 11: Overlaying the detrended elevation raster onto a hillslope raster of Cabin Meadow Creek shows incised channels and another meadow lobe upstream that is missed by the primary flow path and appears to have been diverted around it to the east. Blue and green zones are elevations at or below the height of the current channel flow path. Red and brown zones are higher in elevation than the channel.

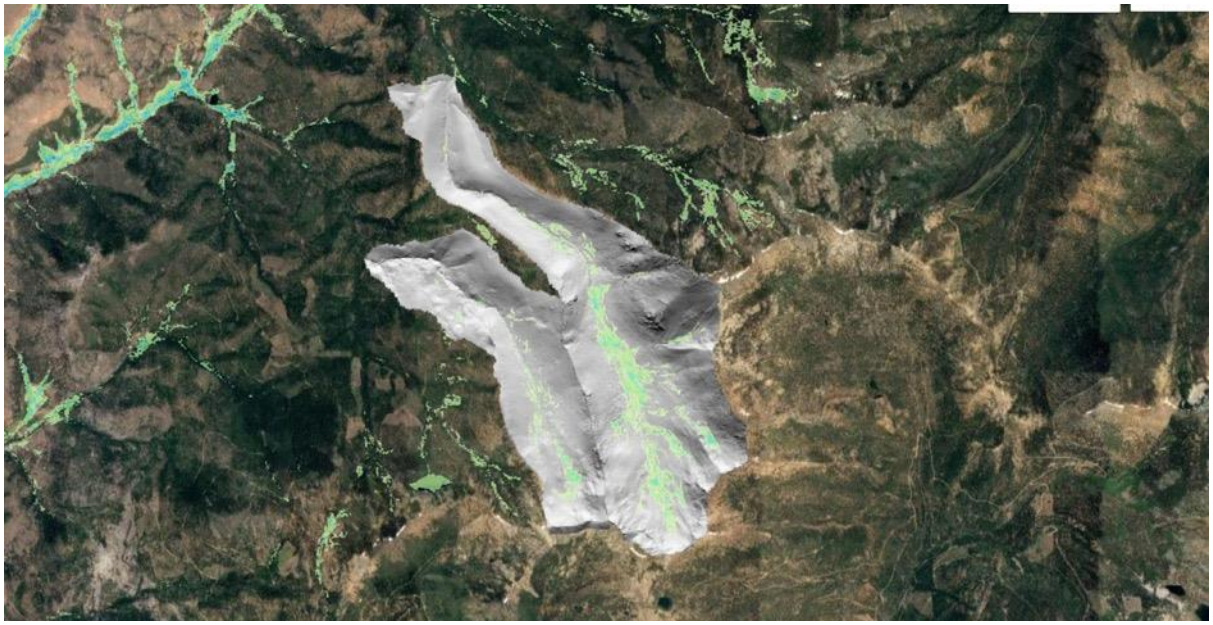


Figure 12. LiDAR analysis of Project catchments (Gray). Light green shading represents areas modeled to have a high potential to support meadow floodplain habitat while the darker green represents current meadow habitats.

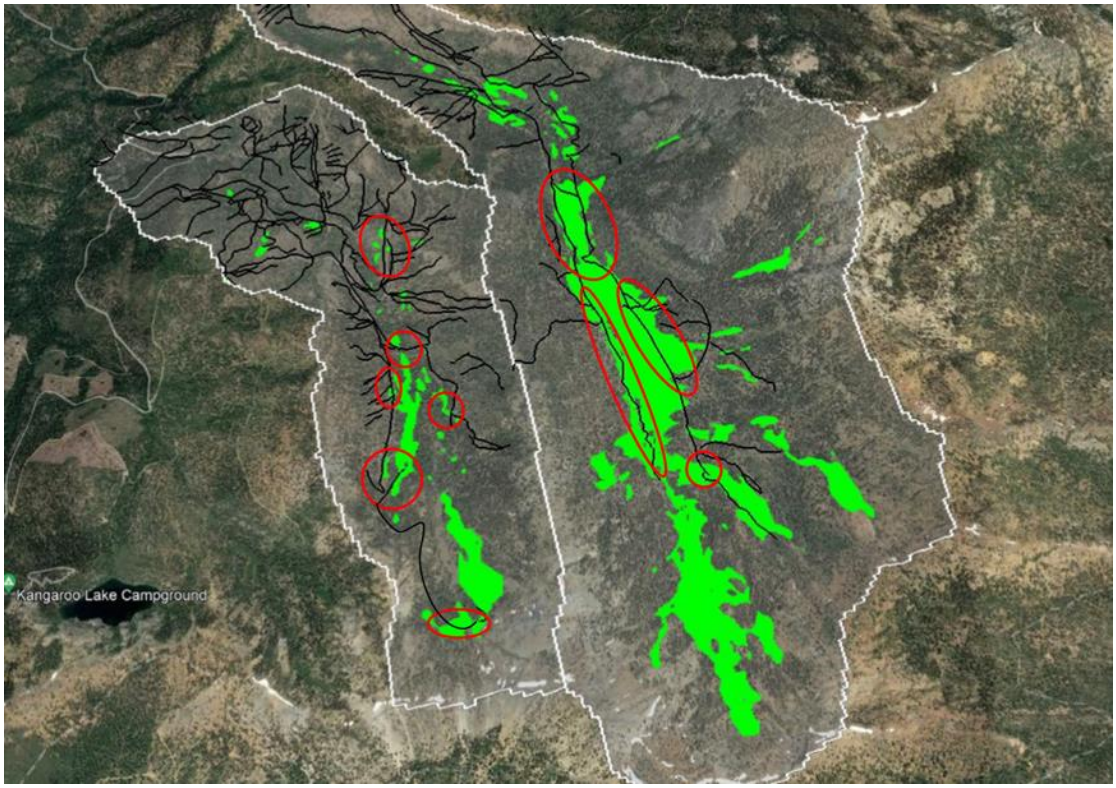


Figure 13: Project area including the Rock Fence Creek (west) catchment and Cabin Meadow Creek catchment (East) with digitized roads and trails in black and potential meadow and floodplain habitats in green. Red ovals highlight areas to potentially mitigate road effects on drainage patterns.

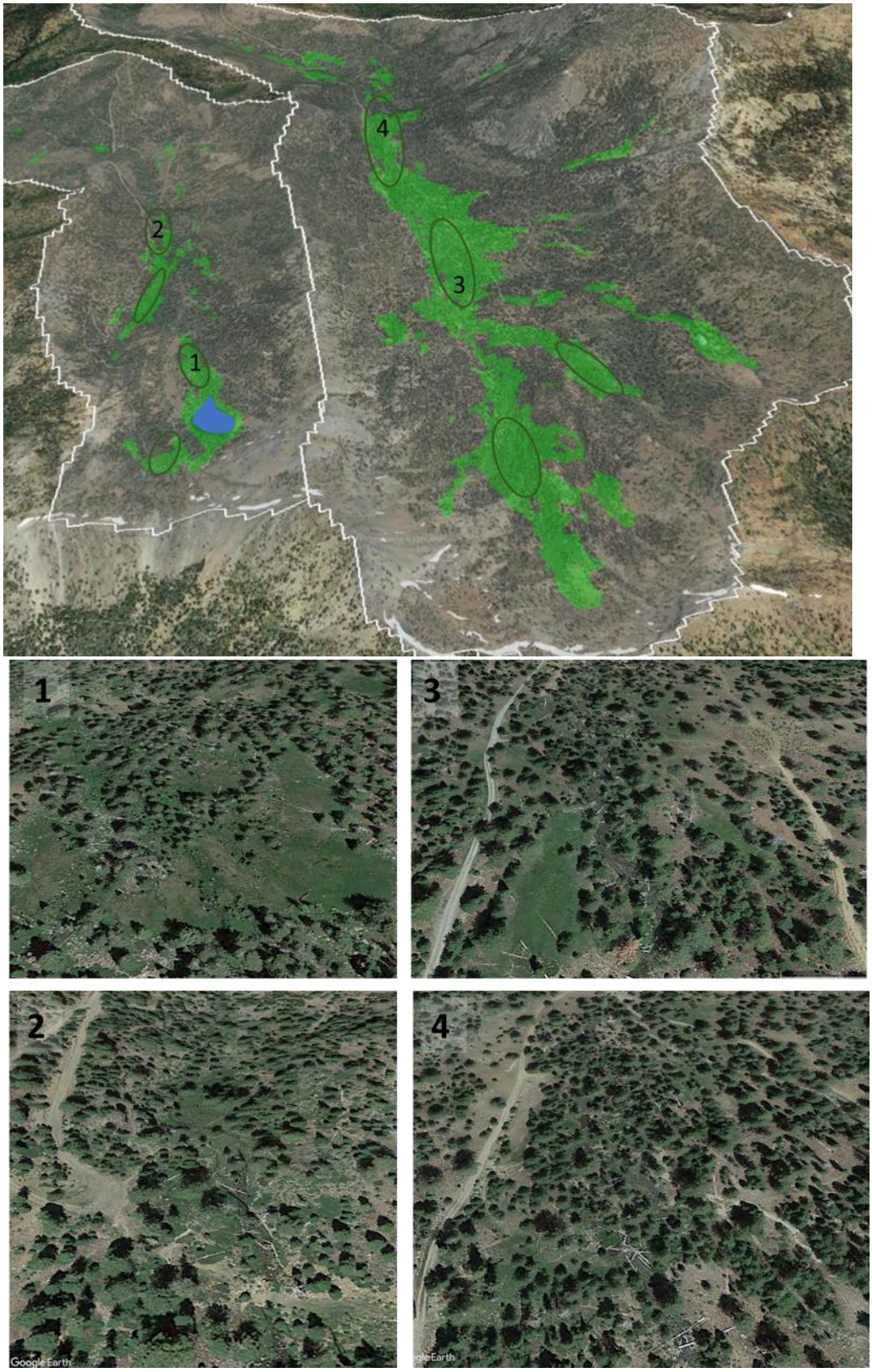


Figure 14. Project area with potential meadow and floodplain habitats in green. Green ovals highlight areas with high potential to restore meadow and floodplain habitats. Numbered ovals match numbers on zoomed images.

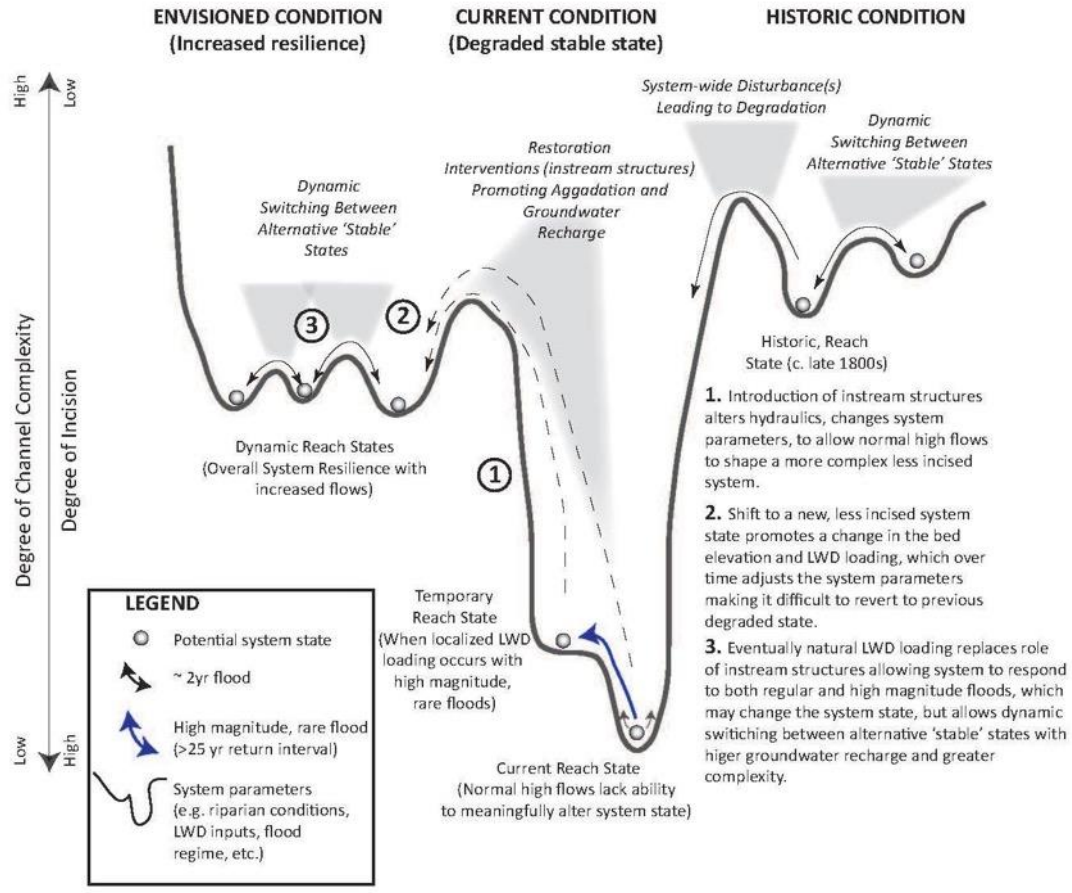


Figure 5: Conceptual model showing the impact of PBR in-stream structures on stream and floodplain Hydrology.

Figure 6. Conceptual approach for applying process-based restoration approaches to the East Fork Scott River project area.

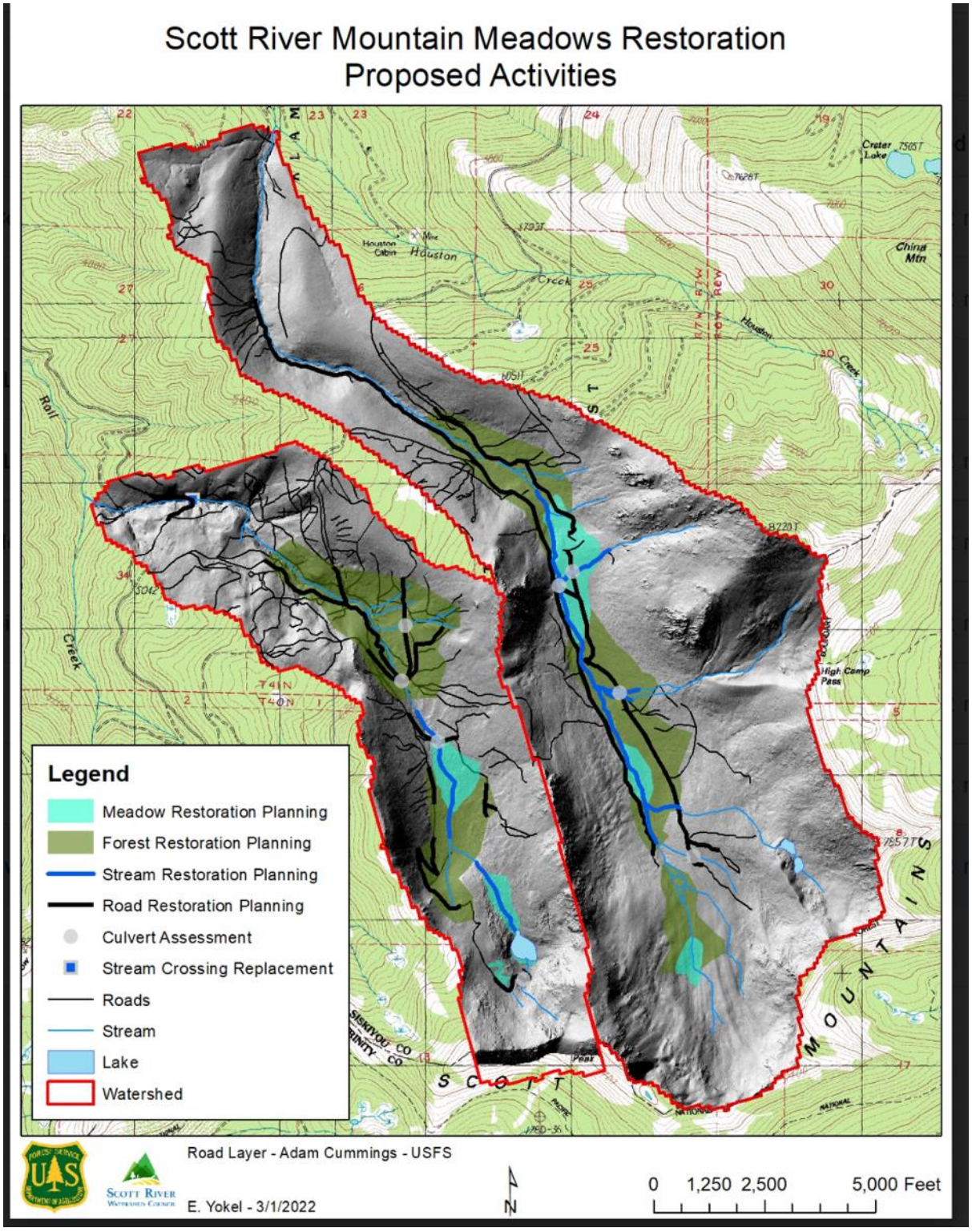
Examples of PBR Structures

Round Valley – small structures in meadow to retain water and expand breeding habitat for Cascades frogs

Yellow Creek – larger structures to raise water table and spread flows

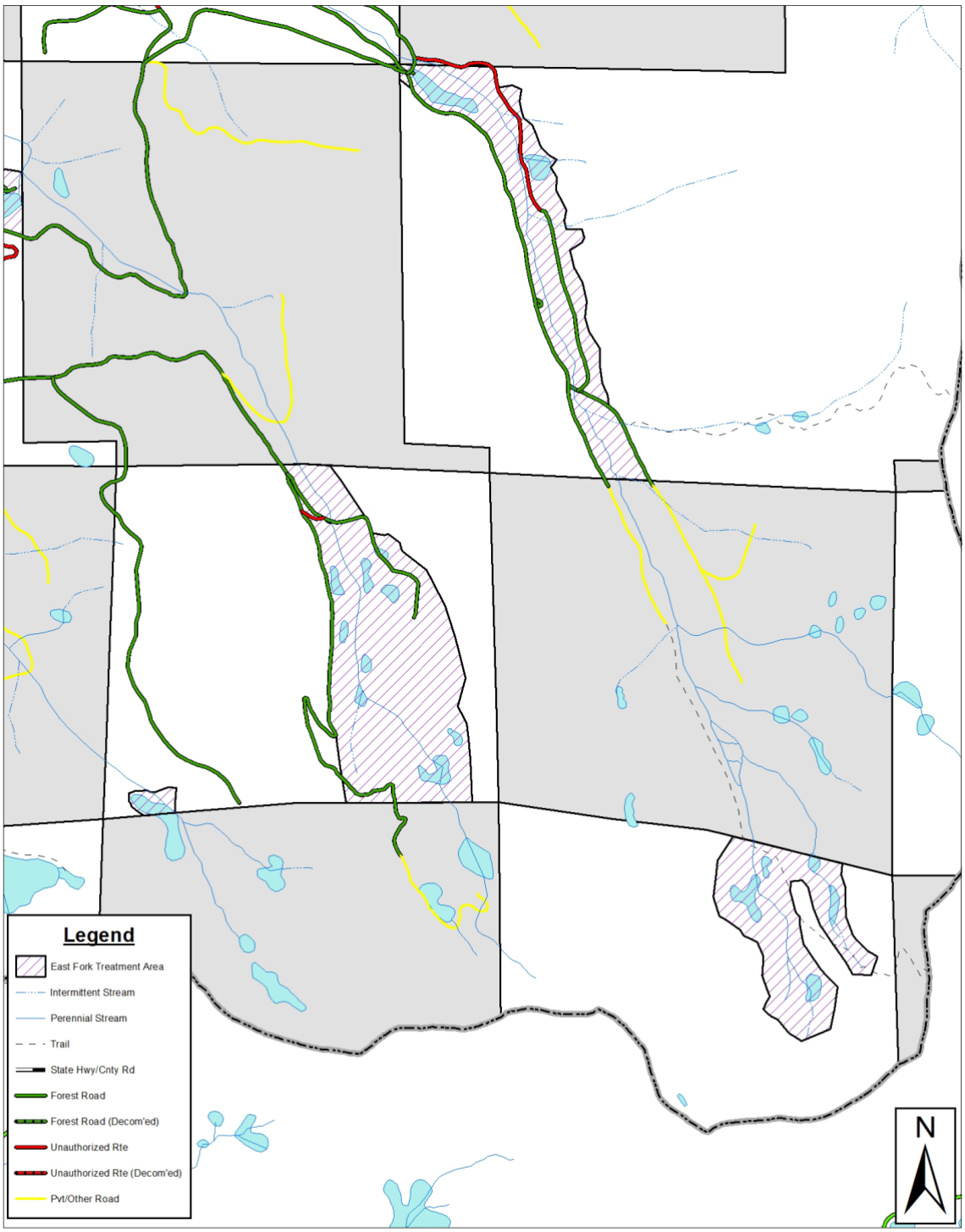
Design Guidelines for PBR Structures

- Based on LiDAR analysis and field confirmation, locate structures at points of difluences (where challenges branch or historically branched) in order to recreate anastomosing stream pattern and push water onto the floodplain.
- Also place structures at close confluences to keep the water on the floodplain as long as possible.
- Place structures at islands or deposition zones in the middle of the stream to widen channel and force meanders.
- stretch meanders
- Catch sediment from the increased meanders by raising the grade at deposition zones with in stream structure, nearby correcting incision.
- Build structures to floodplain elevation, or to 3'whichever is lesser.
- Build structures by layering materials. Work in 6" lifts of brush and then packing—mud, plant materials, sod, gravel. Don't skip a layer. Mud on mud washes away, brush on brush lets water through
- Create low angles both the front and back of dam. As you build up, build downstream too using steadily longer and heavier materials. This replicates beaver construction where bigger materials are floated in as a pool develops.
- In general, keep green end of vegetative materials upstream and brown downstream. This allows the finer vegetation to capture and hold in place suspended sediments.
- In streams with higher stream power (larger catchments, significantly incised channels, prone to extreme rainfall or rain-on-snow events) create additional structural integrity by pounding untreated posts through the constructed dam.
- Add rocks throughout the construction process if available.



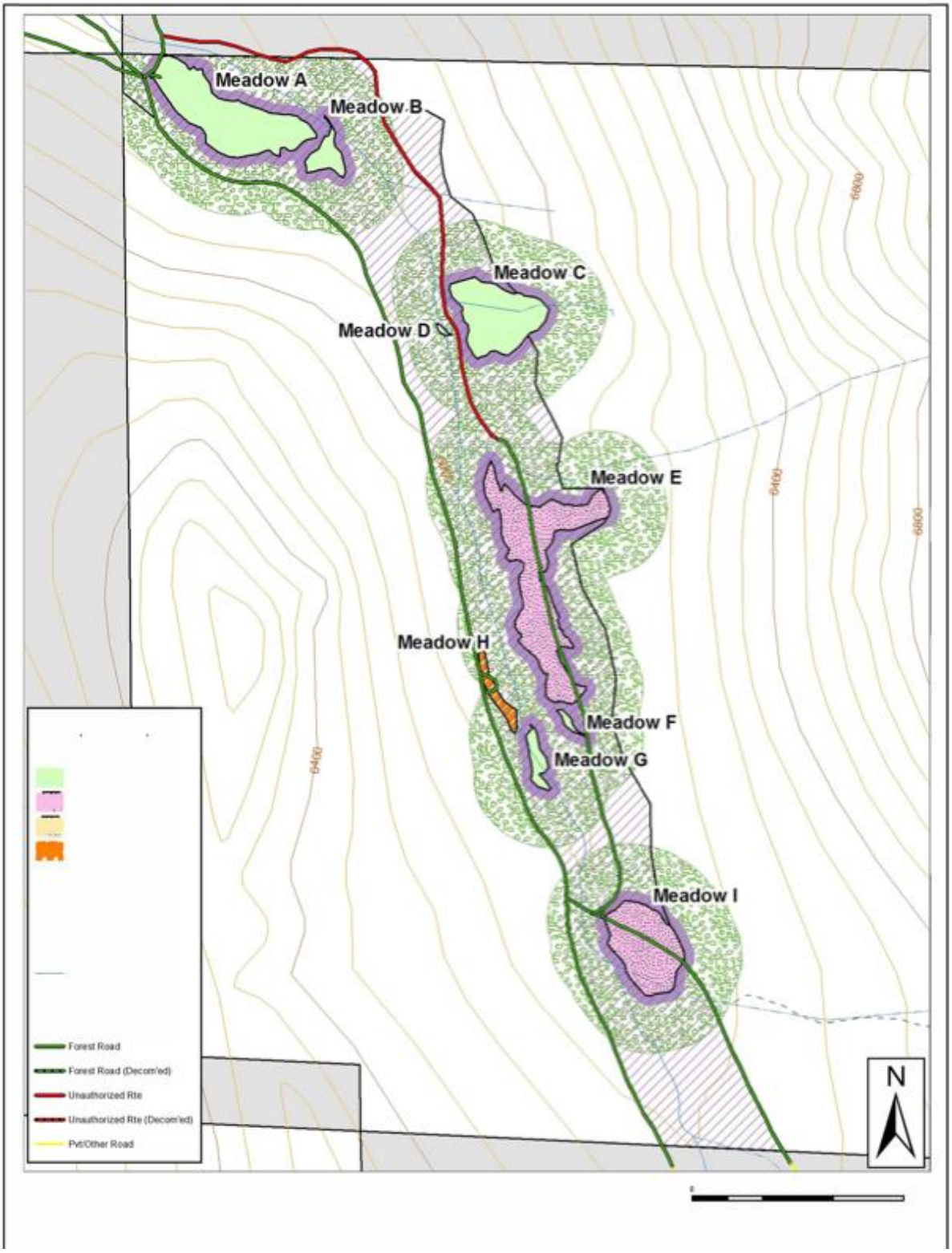
Analysis of Possible Locations for Restoration Treatments in Cabin and Rock Fence Creek Drainages.

Klamath National Forest Mapping Cabin Creek and Rock Fence Creek Drainages

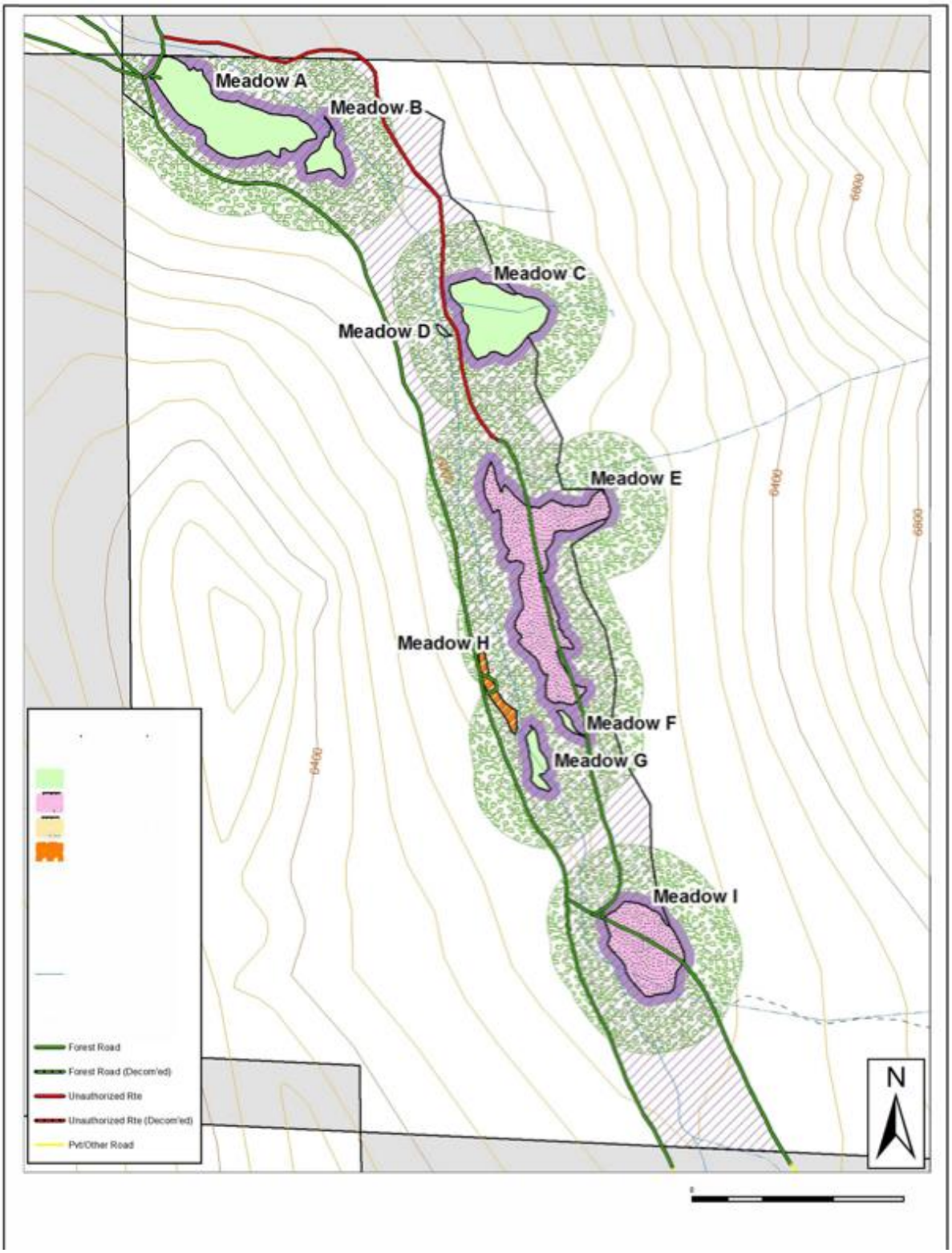


Cabin Meadows Creek and Rock Fence Creek - Overview

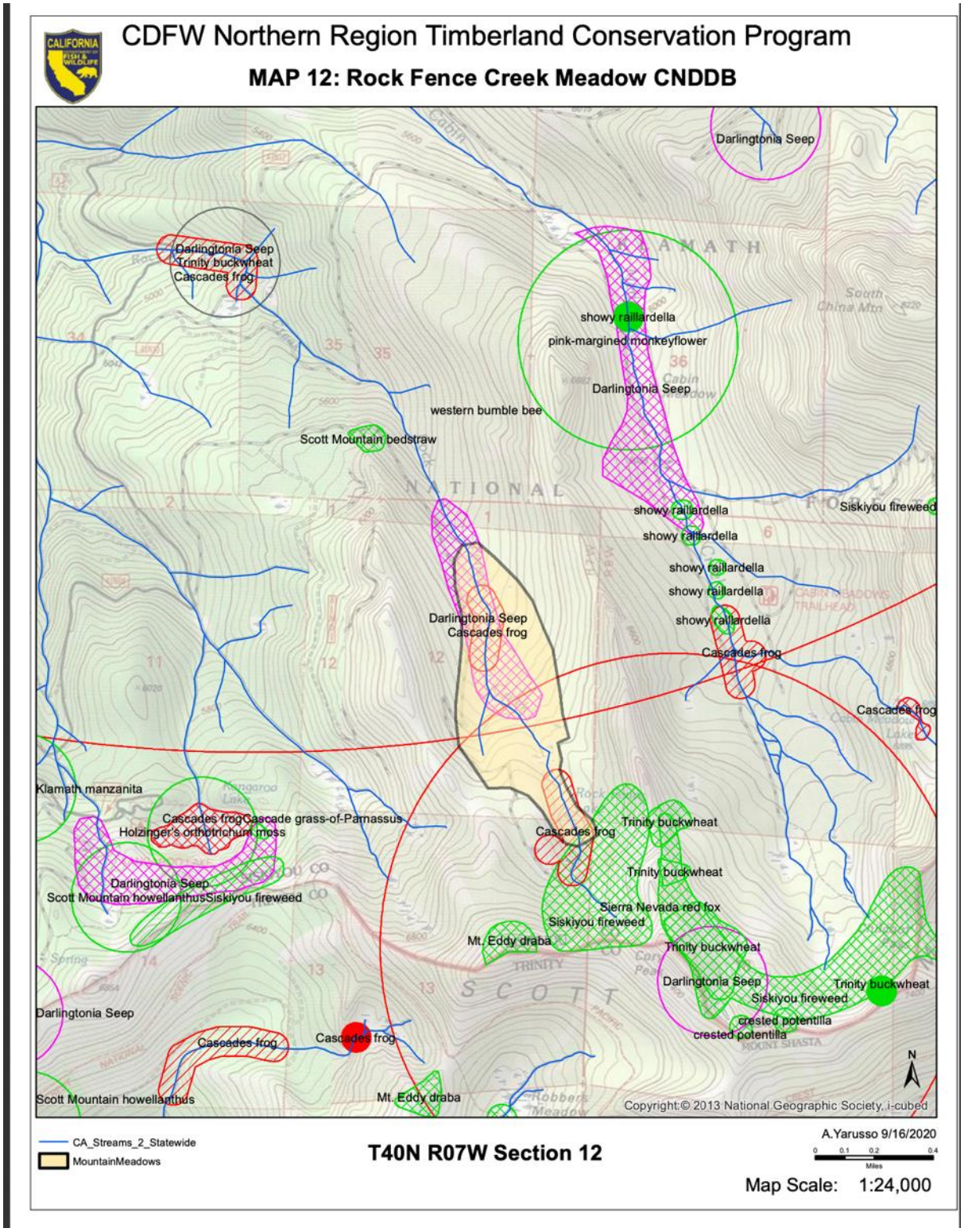
Klamath National Forest Mapping Cabin Creek and Rock Fence Creek Drainages

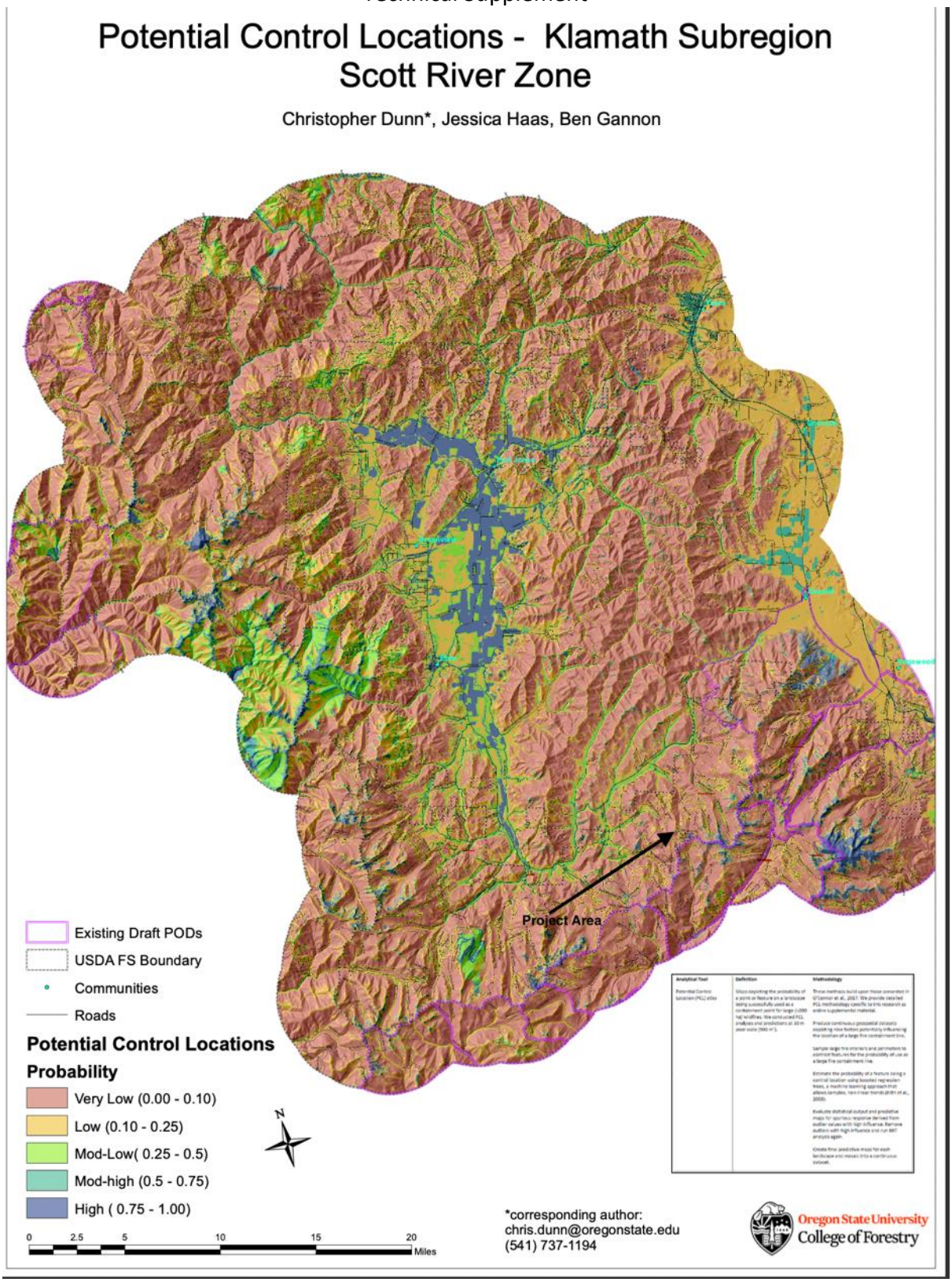


Klamath National Forest Mapping Cabin Creek and Rock Fence Creek Drainages



CDFW CNDDB Mapping Cabin Creek and Rock Fence Creek Drainages




Potential Control Locations - Klamath Subregion
Scott River Zone
Christopher Dunn*, Jessica Haas, Ben Gannon
Project Area
Existing Draft PODs
USDA FS Boundary
Communities
Roads
Potential Control Locations
Probability
Very Low (0.00 - 0.10)
Low (0.10 - 0.25)
Mod-Low(0.25 - 0.5)
Mod-high (0.5 - 0.75)
High (0.75 - 1.00)
N
0 2.5 5 10 15 20
Miles
*corresponding author:
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(541) 737-1194
Oregon State University
College of Forestry

Cabin Creek Meadow with Incision

Stream Channel Incision

2021 Field Tour. Klamath National Forest Staff with Cascade Frog.

Rock Fence Creek Pitcher Plant Fen

Cabin Creek Meadow

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